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SATURDAY SEPTEMBER 11 1943

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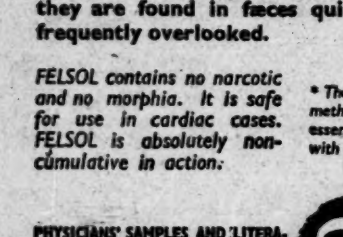

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BRITISH MEDICAL JOURNAL

LONDON SATURDAY SEPTEMBER 11 1943

TRANSFUSION REACTIONS AND FATALITIES CONSEQUENT ON CIRCULATORY OVERLOADING*

BY

R. DRUMMOND, M.R.C.S., L.R.C.P.

Late Assistant Lecturer in Pathology, Welsh National School of Medicine, Cardiff; Regional Transfusion Officer, Welsh Board of Health

Much research has recently been devoted to the identification of abnormal agglutinogens and iso-agglutinins. Noteworthy has been the discovery of the Rh factor by Landsteiner and Wiener (1940). Attention, too, has been focused on the grave danger of transfusion of incompatible blood. It is well known that death may follow transfusion of an incompatible agglutinogen—e.g., B cells into an A recipient, etc. Yet recovery may follow such a mishap. Kilduffe and DeBakey (1942) give the mortality rate as about 50%. The total incidence of haemolytic reactions due to transfusion of incompatible cells over a large series of cases is very low. Thus Kilduffe and DeBakey in a collected series of 40,000 transfusions found 80 (0.18%) haemolytic shock reactions, of which 32 (0.07%) were fatal. The total number of deaths was 45. I have personally seen only two such cases in 10 years; both were fatal, and both were due to faulty blood grouping by the slide technique. However, as Wiener (1939) remarks, "it is fortunate that the transfusion of incompatible blood is not always fatal; indeed, in a number of instances the reactions were so mild or insidious that they passed unnoticed or were attributed to other causes." Serious reactions have followed transfusion of as small a quantity as 10 c.cm. of incompatible blood. In some cases death has been almost instantaneous.

According to Kilduffe and DeBakey, who cite Bordley, there is a definite relation between the amount injected and the mortality. Recoveries have been reported—e.g., two cases by Wiener *et al.* (1941)—and one of these was a Group O recipient who received Group B cells. A similar case was reported by Mollison and Young (1941).

Further, Wiener noted that second in importance to injection of blood of a wrong group as a cause of severe or fatal reactions to blood transfusions is the use of universal donor blood. He mentions that, according to Gesse (1935), the use of universal donor whole blood on recipients of groups other than O is apt to be followed by a haemolytic reaction if more than 200 c.cm. is transfused when the patient is suffering from severe anaemia, or if the serum of the donor is of high titre for the recipient's cells. However, while this is probably true of severely anaemic recipients of the A–B system, it is certainly not true of the ordinary run of casualties. The use of universal donor blood in recipients of all groups suffering from acute haemorrhage has been repeatedly proved to be safe and successful in thousands of casualties in the present war.

A Frequent Cause of Reactions

Due regard having been paid to deaths consequent upon agglutination and haemolysis either of donor's or of recipient's cells, there still remains in my opinion a more frequent cause of reactions and fatalities. I refer to overloading of the circulation in the chronically anaemic and diseased subject.

In the Welsh Board of Health Regional Transfusion Service there is a mutual arrangement whereby all transfusions given in hospitals are notified on a standard record form. With the aid of these records it has been possible to track down and investigate some interesting transfusion reactions. It is noteworthy that in 2,300 transfusions notified in the last 2¼ years there has not been a single instance of death due to transfusion of cells of an incompatible blood group. There have been some cases of death from pulmonary oedema and cardiac failure due to circulatory overloading in chronically anaemic subjects; also, there have been a few haemolytic reactions—e.g., jaundice or haemoglobinuria—following the use of Group O or of homologous blood.

Whitby (1941), in an address to the Shaftesbury Military Hospital Medical Society on transfusion for battle casualties, noted that these subjects contrasted with those commonly requiring transfusion in peacetime practice in that they had been previously healthy and had no cardiac disability; it was therefore safe to give at least two pints of blood or plasma quickly to anyone with a blood pressure consistently below 100 mm. Hg, and then to carry on with a slower drip transfusion. It is common knowledge that one problem which sometimes confronts a resuscitation officer when dealing with air-raid casualties is how to get the fluid in quickly enough. Indeed, positive pressure may have to be used, and it may be necessary to introduce a pint of plasma or blood in 15 minutes.

The reason why no cardiac embarrassment occurs in Service casualties is, of course, simple. First, the introduced fluid replaces lost fluid. Secondly, the myocardium is invariably normal and therefore functions efficiently. It is well known in clinical medicine that it is impossible to strain a normal heart. This has been abundantly proved experimentally. I quote here from Starling (1930):

> "Experimentally it is found that the isolated heart has a marvellous power of adaptation—i.e., regulating its activity according to the mechanical demands which are made upon it. Thus if we keep the venous inflow constant it makes no difference to the output of the heart whether the average arterial pressure be maintained at 80 or 160 mm. Hg, although in the latter case the heart must do twice as much work in order to keep the outflow at the same level. Again, if we maintain the arterial pressure constant and alter the venous inflow, we find that within very wide limits the heart is able to expel against the arterial resistance the whole of the blood which flows into it from the veins. In this way we can alter the output of a small heart weighing 50 grammes from 300 to 3,000 c.cm. per minute."

Further, Hayward (1942) showed that even in only reasonably healthy subjects serum or plasma could be introduced fairly rapidly. He transfused 50 subjects suffering from chronic arterial disease each with 800 c.cm. of pooled serum, the fluid being introduced at a rate of 5 to 15 c.cm. a minute. The incidence of rigors was 30%. If the serum was injected slowly the cardiovascular system adjusted itself to the increased blood volume readily, there being no increase of venous pressure, and the blood pressure in most cases showed no significant change.

* A paper read at a meeting of Regional Transfusion Officers held at Leeds on March 4, 1943.

No. 32

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended August 14.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	46	—	23	1	3	70	4	21	1	3
Deaths		—	—				3	—		
Diphtheria	491	28	151	59	24	665	32	184	33	15
Deaths	16	1	2	3	—	15	1	3	1	1
Dysentery	149	20	100	—	—	51	10	44		—
Deaths		—		—	—		1		—	—
Encephalitis lethargica, acute	2	—	—		—	2	—	—		—
Deaths		—					—			
Erysipelas	—	—	36	8	4	—	—	40	6	3
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				137					91	
Deaths	39	5	10	24	16	34	2	14	11	6
Measles	1,476	100	19	18	6	4,983	475	126	24	31
Deaths	—	—	—	—	—	4	—	1	—	—
Ophthalmia neonatorum	108	7	21	—	—	76	2	14	—	—
Deaths	—									
Paratyphoid fever	6	1	2	—	1	13	1	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal*	346	23	2	—	1	440	14	7	1	—
Deaths (from influenza)	7		—	—	—	11	1	1	—	—
Pneumonia, primary			120	16				138	8	
Deaths		12		7	13				11	5
Polio-encephalitis, acute	—	—				3	—			
Deaths		—					—			
Poliomyelitis, acute	11	—	—	—	—	15	1	1	2	—
Deaths		1	—	—			—	—	—	
Puerperal fever		3	13		—	—	1	8	1	1
Deaths		—					—			
Puerperal pyrexia†	118	11	7	2	2	175	6	11		4
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,558	155	221	32	42	1,332	76	253	46	24
Deaths	3	—	—	—	—	—	—	1	—	—
Small-pox	—	—	—		—	—	—	1		—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever	10	—	3	3	—	15	—	—	20	1
Deaths	—		—	1	—	—	—	—	1	—
Typhus fever	—	—	—	—	—	—	—	—	5	—
Deaths			—	—	—			—	—	—
Whooping-cough	1,855	137	57	21	33	1,125	97	17	51	18
Deaths	13	1	4	—	1	4	1	—	2	—
Deaths (0–1 year)	278	29	50	56	38	287	28	63	31	20
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	3,562	513	495	169	112	3,664	514	538	166	107
Annual death rate (per 1,000 persons living)			11·2	11·1	‡			12·1	11·1	‡
Live births	6,027	783	873	371	263	5,939	727	853	435	310
Annual rate per 1,000 persons living			17·8	24·4	‡			17·6	29·0	‡
Stillbirths	184	20	35			220	18	38		
Rate per 1,000 total births (including stillborn)			39					43		

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes puerperal fever for England and Wales and Eire.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* during the week reviewed the notifications of measles fell by 427 and of acute pneumonia by 138, but the figures for whooping-cough and dysentery rose by 241 and 27 respectively.

The 38 more cases of scarlet fever were the result partly of a small rise in London and the South-Eastern Counties (75 notifications in the combined area) and partly of a rise of 31 in Lancashire. The only decrease of note was 70 fewer cases notified in Yorks West Riding. The downward trend of the past four weeks gave place to a general rise in the incidence of whooping-cough, especially in Lancashire and London, with 51 and 28 more cases respectively. There were only a few exceptions to the falling trend of measles—for example, 48 more cases in Essex. The biggest decreases were in Norfolk 74 and in London 38.

The principal of several outbreaks of dysentery during the week were in Kent, Malling R.D. 12; Essex, Dunmow R.D. 10; Nottinghamshire, Nottingham C.B. 8; Wiltshire, Westbury U.D. 8; Suffolk, Blyth R.D. 8; Caernarvonshire, Bangor M.B. 6 and Lleyn R.D. 5. In London notifications went up from 13 to 20, and in Lancashire down from 18 to 9, and in Gloucestershire from 17 to 6.

In *Scotland* the only disease with a noteworthy change in incidence was scarlet fever, with 45 more cases, due to a general rise in the south-eastern area. The high level of dysentery was maintained, 100 cases (an increase of 5 over the previous week) being notified.

In *Northern Ireland*, according to the daily press, 13 cases of typhoid have been notified in Belfast. Cases have also been reported from other towns.

The Week Ending August 21

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,516, whooping-cough 2,015, diphtheria 527, measles 1,049, acute pneumonia 312, cerebrospinal fever 38, acute poliomyelitis 16, dysentery 198, paratyphoid 8, typhoid 13.

Medical News

A meeting of special interest to medical practitioners has been arranged by the Association for Scientific Photography and will be held in the clinical lecture theatre on the first floor of the Middlesex Hospital, W.1, at 2.30 p.m. on Saturday, Sept. 18. The subject of the meeting is "Clinical Photography." Short papers will be read by Mr. T. P. Kilner, F.R.C.S., Miss Hilda Marsden and Fl. Lt. H. Mandiwall, M.B., L.D.S. (chairman). The meeting will deal specifically with the clinical photography of patients. Surgical techniques, orthopaedics, pathology, etc., will be excluded. The Association for Scientific Photography invites all interested medical practitioners to attend the meeting and join in the discussion.

Dr. Donald Johnson, standing as a Liberal Independent, lost the Chippenham Parliamentary by-election by 195 votes. Mr. David Eccles, the successful candidate, standing as a Conservative and National Government supporter, is a son of Mr. W. McAdam Eccles, F.R.C.S., and son-in-law of Lord Dawson of Penn.

A specialized library has been established for the use of members of the Institute for the Scientific Treatment of Delinquency. A twenty-two-paged index of authors has just been issued, and a subject catalogue is in preparation. Inquiries should be addressed to the general secretary, I.S.T.D., 17, Manchester Street, W.1, who will be pleased to send application forms and further particulars.

Dr. Andrew McNae Wyllie, deputy physician-superintendent of the Crichton Royal Institution, Dumfries, has been appointed physician-superintendent of Aberdeen Royal Mental Hospital in succession to Dr. R. Dods Brown, who is retiring on Sept. 30.

Some medical journals in Italy have temporarily suspended publication, the *Rivista de Neurologia* among others.

Sir Arthur Newsholme, K.C.B., who died on May 17, bequeathed the residue of his estate to the London School of Hygiene and Tropical Medicine.

The Ministry of Health has set up an informal committee, on which the Ministry of Supply, the Ministry of Works, and the Radium Commission are represented, whose work it will be to see that the best use is made of the limited supplies of deep x-ray apparatus. Hospitals placing orders for such equipment should send copies to the Supplies Division, Ministry of Health, Whitehall, London, S.W.1.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1.

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ANY QUESTIONS?

Black Hairy Tongue

Q.—*What are the aetiology and treatment of black hairy tongue? This condition has arisen quite suddenly in my patient, an old man who has had a stroke within the last year, and who is a chronic asthmatic. He smokes one ounce of tobacco a week.*

A.—The hairy appearance is due to overgrowth of the filiform papillae on the centre of the dorsum of the tongue. There is an inflammatory reaction in the papillary layer of the corium. The black colour is usually thought to be due to a fungus, the *Aspergillus niger*, whose spores are black. In some cases a yeast has been isolated, or bacteria producing black colonies; in others the black appearance is due to food debris, or the papillae may darken with age. Other causes which have been suggested include tobacco smoke, irritant mouth-washes, sulphonamide drugs, gastric hyperacidity, or a trophoneurosis. It is not due to nicotinic acid deficiency, which causes black tongue in dogs. Although the patient is apt to worry about the appearance of his tongue, it usually produces no ill effects unless the overgrown papillae touch the soft palate and cause retching. Malignant changes do not occur. The condition may disappear spontaneously, but treatment is not likely to prove efficacious. Attention should be paid to oral and dental hygiene, and the tongue may be gently scraped daily. A mild mouth-wash, such as sod. bicarb. gr. 10 to 1 oz. of water, may be used twice daily. The patient should not smoke. The application of thymol (1 in 1,000 solution) has been recommended for cases due to a fungus.

Types of Pertussis Vaccine

Q.—*I wish my child, aged 5 years, to have prophylactic inoculations against whooping-cough. I notice that some firms make up two types of material—one of which is labelled "Fort." Could you tell me the best type to use?*

A.—To get a reasonable degree of protection against pertussis (whooping-cough) it is essential to use large doses of a smooth-phase vaccine. American workers have recommended a total of 80,000 to 100,000 million organisms given in 1.0, 2.0, 2.0, and 3.0 c.cm. doses at weekly intervals of a vaccine containing 10,000 million organisms per c.cm. This method has obvious administrative difficulties, and recent work by Bell (see under "Any Questions?", *British Medical Journal*, 1943, **1**, 622) has shown that two 1-c.cm. injections of an alum-precipitated vaccine (10,000 million organisms per c.cm.) at a month's interval gave as good results as the larger dosage more frequently. Pending the preparation of A.P. vaccine in this country, a useful compromise is three injections of 1.0, 1.0, and 2.0 c.cm. of a 10,000- or 20,000-million-organism-per-c.cm. vaccine (this is the "Fort" vaccine) with a week's interval between the first and second injections and a month between the second and third.

Quinine Resistance in Malaria

Q.—*One hears frequent mention these days of the danger of inadequate doses of the sulphonamides, resulting in a sulphonamide-resistant strain of, say, streptococci or gonococci. What chances are there of breeding a quinine-resistant malaria parasite by the common custom of taking 5 gr. of quinine daily for prophylactic purposes? In these days of quinine shortage it is an important consideration.*

A.—Some strains of malaria parasites have been shown to be naturally more resistant to quinine than others. Whether a strain can be made resistant through administration of quinine is much more debatable. Strains of trypanosomes made arsenic-resistant by minimal doses of trypanocidal arsenical compounds are well known, and it has recently been shown that the monkey malaria parasite, *P. knowlesi*, can be made resistant to plasmoquin in this way. Theoretically, therefore, it cannot be denied that quinine-resistant strains of the malaria parasite might result through the taking of small doses of quinine, and some authors have even described such a condition. The general feeling, however, among authorities is that the occurrence of quinine-resistant parasites brought about in such a manner has not been satisfactorily established, and were it a common result such an effect would almost certainly by now have been clearly demonstrated. Cases suspected to be resistant to quinine are occasionally seen in hospital practice, but careful inquiry usually shows that the patient has not had the quinine he is supposed to have had, and the case usually clears up at once when the observer himself sees an adequate dose administered in his presence. In this connexion, of course, malingering may enter in. Briefly the occurrence of quinine-resistant malaria parasites brought about as a result of regular daily dosage of prophylactic (suppressive) quinine treatment may be ruled out as unsupported by any satisfactory evidence and as entirely contrary to general experience.

Lip-reading for the Deaf

Q.—*How is lip-reading taught and learned? Would it be feasible for a G.P. to help a boy of 18 with deafness due to bilateral chronic otitis media to learn to lip-read? The boy wishes to go to the university.*

A.—Lip-reading is usually taught by a special instructor who has been trained as a lip-reading teacher. Any local association or institute for the deaf would no doubt be able to give the name and address of a suitable instructor in lip-reading. It is assumed that the patient could be treated privately. If not, it will be necessary to secure his admission to one of the institutes for the deaf. It will be rather a waste of a qualified medical practitioner's time to undertake such tuition himself. An intelligent boy of 18 should do quite well and should learn to lip-read sufficiently well to enable him to go to a university. This has been possible in cases within the writer's experience. One Army cadet, for instance, who became completely deaf as a result of meningococcal meningitis during the last war became so proficient in lip-reading as to proceed to one of the well-known universities and become a lecturer in a scientific subject—a position he still holds.

Hair Pigments and Greying

Q.—*In the* JOURNAL *of July 24, p. 140, you published a question and answer on the greying of hair. I shall be grateful for information on the following points: (1) What are the pigments which produce the colours of human hair? (2) How are these pigments elaborated? (3) From what foods? (4) Do iron, copper, and manganese produce these pigments? (5) Is greying a failure to metabolize these pigments, or is it a failure of the hair to receive the pigment? (6) Would a prophylactic minimal dose of iron, copper, etc., help to supply hair pigment—either by supplying substances lacking in food or by preventing over-destruction of pigment substances?*

A.—Very little is known about the colour of human hair. It is probably due to varying amounts of the pigment melanin and the way in which the pigment is deposited—e.g., granular as in black hair or diffuse as in red hair. Melanin is a complex black pigment formed from tyrosine, catechol, or related substances by oxidizing enzymes. The origin of the melanin in hair has not been established. The melanin of pigmented skin is assumed to be formed from tyrosine.

The greying of hair is ascribed to the absence of melanin, presumably due to failure of melanin formation. Prevention of premature greying of hair by treatment with vitamin B preparations, *p*-aminobenzoic acid, and endocrines has been dealt with in the answer to a question in the *Journal* of July 24, p. 140. The white hair of old age is due to an increased proportion of calcium carbonate and phosphate. These substances form about one-third of the ash of white, compared with one-sixth to one-fifth in coloured and grey hairs.

It cannot be stated that any particular foods contribute to pigment formation in hair. The melanin is presumably formed ultimately from some breakdown product of protein, but the amount is small and negligible compared with the total daily intake of protein. There is no evidence that iron, copper, and manganese influence hair pigments.

A Difficult Skin Case

Q.—*A man, aged 47, six years ago (in Nairobi) first noticed his left foot getting hot while playing golf. After the game the left foot used to get a blister. The disease has been progressive. The hands start swelling now, and both feet get blisters after walking. He has had to give up police work as he is unable to walk. At present his hands and feet feel hot, tingling, and sticky due to slight moisture. The taking of a meal or immersion of the hands in cold water leads to a diminution in the swelling for a short period.*

A.—It is very difficult to offer a diagnosis with the information given of this very chronic case. We presume that the usual tests (urine, Kahn, and blood count) have been made. In every case of

bullous or vesicular eruption of the extremities, especially of the feet, the first step is to exclude epidermophytosis, which may trouble a patient for years. Special attention should be paid to the interdigital clefts, particularly that between the fourth and fifth toes, and also to the nails. It is now well recognized that a more generalized eruption, an epidermophytide, affecting the hands as well as the feet, may occur and is cured only when the foot trouble has been cleared. It would be well to take care that footwear has been freed from possible infection.

Assuming that epidermophytosis can be excluded, pompholyx (acropompholyx) vera must be considered. This apparently may be constitutional, or of climatic or nervous origin. The best remedy would be change of climate, especially as the patient may not have had his usual leave owing to war. The diet should be simple, alcohol should be avoided and also highly seasoned foods. The itching may be relieved by 1/4 gr. luminal twice a day; locally by soaking the feet in weak potassium permanganate followed by dusting with a drying powder such as the following: alum 5 parts, tannic acid 5 parts, boric acid 10 parts, talc to 100 parts.

There are other possibilities, such as disturbance of salt metabolism by heat, but this is not likely if the patient has been resident in the Kenya highlands.

Oestrogens for Small Breasts

Q.—*On p. 125 of the issue of July 24 there is an answer to a question about oestrogens for small breasts. You recommend using preparations which contain 2 mg. per g. Would you kindly let me know from whom such a preparation could be obtained, and if possible how often it should be applied, and for how long? Also, what is the maximum period that such a preparation could be persevered with if there is no response?*

A.—It should be pointed out that the answer to the question on oestrogens for small breasts did not recommend the use of this hormone except where there are other general signs of ovarian deficiency. It is not the function of this column to supply information concerning the various commercial preparations of hormones or other drugs. Application should be made daily. In responsive cases signs of development of the mammary tissues are usually manifest within a month or two. If there is no response at the end of three months it is unlikely to appear subsequently. It should, however, be clearly realized that such treatment is purely substitutional, and that the artificially stimulated development will soon regress once therapy is discontinued. Finally, it must be emphasized that continued oestrogen therapy is undesirable and may be dangerous. For instance, it has been shown that chronic mastitis may be aggravated by oestrogen administration. If menstrual function is normal its rhythm may be disturbed by continued oestrogen therapy, the menstrual flow being sometimes suppressed, sometimes considerably increased in length and volume. The inunctions should therefore be applied during the first two or three weeks of the cycle only. In any case oestrogens should not be given continuously for more than 3 or 4 months without periods of remission. In view of the purely temporary effect obtained, and that only in cases showing other evidence of ovarian deficiency more obviously claiming therapeutic adjustment, it would seem that the administration of oestrogen for small breasts should be rarely called for.

Control of the Common Cold

Q.—*In view of the fact that vaccines appear to be of little use in preventing the common cold, I should be glad to know what general measures should be adopted to prevent loss of time through colds among factory workers. I have been asked by my management whether the routine administration of vitamin supplements to the workers would increase their resistance to colds; also whether routine exposure to ultra-violet light during the winter months would be helpful. Is the voluntary or compulsory wearing of masks during the active stage of a cold likely to prevent spread of infection?*

A.—With an estimated (American) average of three colds per person per year this apparently trivial infection must cause great economic loss through time off work due to the cold itself or its complications (sinusitis, bronchitis, pneumonia), and through impaired efficiency in those who carry on. Counteractive measures among factory workers should have two objectives: (1) to raise resistance to the common cold and its complications, and (2) to prevent the spread of infection among the employees. Physical fitness and well-being does help the individual to resist "catching cold." Locke,[1] for instance, found that two-thirds of a group of persons whose physical fitness was rated on physiological tests as above a certain standard had only one cold each per year, whereas four-fifths of another group below this standard had four or more colds per year. An adequate and well-balanced diet, sensible clothing, in particular footwear, and the avoidance of fatigue or excesses, help to maintain physical fitness, and these facts should be known among factory workers. If there is evidence of vitamin deficiency in the diet, that must be made good, if necessary by synthetic preparations. Many people claim that a daily dose of cod-liver oil throughout the winter helps to ward off the cold, but there is no evidence that *excess* of any particular vitamin will protect against the infection. The prophylactic value of ultra-violet irradiation is in doubt. Colebrook[2] failed to show any benefit, but Sherman[3] found, in a comparative trial at the Bournville Works of ultra-violet light, vitamins A and D, and a mixed vaccine by injection or by mouth, that the only prophylactic which was associated with a significant reduction in the incidence of colds, with a considerable saving of time lost, was ultra-violet light. Physical well-being will also lessen the risk of complications, particularly if management and patient alike agree that an individual with a cold should remain indoors, preferably in bed, for 1 or 2 days during the acute stage.

Control of the spread of infection in the factory will be helped if the "colded" person is encouraged to report sick at onset. Chronic sufferers from colds or their complications should be carefully examined and receive appropriate treatment. An environment arranged for maximum comfort is inimical to the spread of the common cold,[4] so that air-conditioning should, wherever possible, be introduced. Alternatively, there must be good ventilation without draughts and with the atmospheric temperature maintained around 60° to 65° F. Measures must be taken to prevent and control the dissemination of dust. If colds are very prevalent, aerial disinfection by a bactericidal mist of sodium hypochlorite atomized by hand or by pressure pump may be used without risk, and perhaps with some benefit. The wearing of masks in the factory, besides creating difficulties, is not likely to effect much, since there are ample opportunities for catching the infection elsewhere.

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1 *J. infect. Dis.*, 1937, **60**, 106.
2 *Spec. Rep. Ser. M.R.C.*, No. 131, London, 1929.
3 *British Medical Journal*, 1938, **2**, 903.
4 Kerr, W. J., and Logan, J. B., *Proc. Soc. exp. Biol.*, N.Y., 1933-4, **31**, 713.

Infected Butter and Cheese

Q.—*Is there any risk of milk-borne infections being conveyed in butter and cheese (and cream when available), especially to young children? If so, can any precautions be taken?*

A.—Almost all butter sold in this country is made from pasteurized milk. Pasteurized milk is being used increasingly in the manufacture of cheese, but the danger from this product is small in any case since pathogenic bacteria, including tubercle bacilli, die out during the usual process of maturation. There is some risk in normal times from the consumption of raw cream, but it should be pointed out that pasteurized cream is a perfectly satisfactory product. A further reason against any serious disquiet on this score is the quantitative factor. No milk product is consumed in such quantities as milk itself, of which a child may receive a pint or more daily, in which the concentration of tubercle bacilli is sometimes such that the infective dose for a guinea-pig is only a small fraction of a c.cm. Whether or no a serious tuberculous lesion is produced naturally depends in part on the magnitude of the infecting dose, which from badly infected milk consumed over a long period may be very large. (The infectivity of butter and particularly of cheese was discussed in an annotation in the *Journal* of June 12, p. 730.)

LETTERS, NOTES, ETC.

Research in Senile Disease

Prof. H. E. ROAF writes: With reference to the article, "Possibilities of Research in Senile Diseases" (Aug. 21, p. 239), we have in Liverpool a research institute, one of the objects of which is to examine healthy persons over 35 years of age. This Institute of Research for the Prevention of Disease is administered by a committee of the Liverpool and District Hospital for Diseases of the Heart. Dr. I. Harris wished to undertake work on the prevention of high blood pressure and allied conditions, and he persuaded the committee of the Heart Hospital to establish a separate research institute. The research work consists of work on animals and the examination of healthy people. The idea of the latter procedure is to establish standards of health for older people, to detect the early and preliminary stages of departures from health, and to prevent further degenerations, if possible. It seems to me that this project is akin to that suggested by Mr. Creman. If funds were available our activities could be enlarged after the war. Finally, I must point out that if anyone is found to be suffering from disease, that individual is referred to his or her own private practitioner.

"Sulphamethazine"

Imperial Chemical (Pharmaceuticals) Ltd. write: In your issue of Aug. 21, p. 230, you published a paper "Pneumonia treated with Sulphamethazine." The authors are probably unaware that the correct name and description of this material has recently been changed to "sulphamezathine" brand of sulphadimethylpyrimidine.

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TRANSFUSION REACTIONS AND FATALITIES CONSEQUENT ON CIRCULATORY OVERLOADING*

BY

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Much research has recently been devoted to the identification of abnormal agglutinogens and iso-agglutinins. Noteworthy has been the discovery of the Rh factor by Landsteiner and Wiener (1940). Attention, too, has been focused on the grave danger of transfusion of incompatible blood. It is well known that death may follow transfusion of an incompatible agglutinogen—e.g., B cells into an A recipient, etc. Yet recovery may follow such a mishap. Kilduffe and DeBakey (1942) give the mortality rate as about 50%. The total incidence of haemolytic reactions due to transfusion of incompatible cells over a large series of cases is very low. Thus Kilduffe and DeBakey in a collected series of 40,000 transfusions found 80 (0.18%) haemolytic shock reactions, of which 32 (0.07%) were fatal. The total number of deaths was 45. I have personally seen only two such cases in 10 years; both were fatal, and both were due to faulty blood grouping by the slide technique. However, as Wiener (1939) remarks, "it is fortunate that the transfusion of incompatible blood is not always fatal; indeed, in a number of instances the reactions were so mild or insidious that they passed unnoticed or were attributed to other causes." Serious reactions have followed transfusion of as small a quantity as 10 c.cm. of incompatible blood. In some cases death has been almost instantaneous.

According to Kilduffe and DeBakey, who cite Bordley, there is a definite relation between the amount injected and the mortality. Recoveries have been reported—e.g., two cases by Wiener *et al.* (1941)—and one of these was a Group O recipient who received Group B cells. A similar case was reported by Mollison and Young (1941).

Further, Wiener noted that second in importance to injection of blood of a wrong group as a cause of severe or fatal reactions to blood transfusions is the use of universal donor blood. He mentions that, according to Gesse (1935), the use of universal donor whole blood on recipients of groups other than O is apt to be followed by a haemolytic reaction if more than 200 c.cm. is transfused when the patient is suffering from severe anaemia, or if the serum of the donor is of high titre for the recipient's cells. However, while this is probably true of severely anaemic recipients of the A–B system, it is certainly not true of the ordinary run of casualties. The use of universal donor blood in recipients of all groups suffering from acute haemorrhage has been repeatedly proved to be safe and successful in thousands of casualties in the present war.

A Frequent Cause of Reactions

Due regard having been paid to deaths consequent upon agglutination and haemolysis either of donor's or of recipient's cells, there still remains in my opinion a more frequent cause of reactions and fatalities. I refer to overloading of the circulation in the chronically anaemic and diseased subject.

In the Welsh Board of Health Regional Transfusion Service there is a mutual arrangement whereby all transfusions given in hospitals are notified on a standard record form. With the aid of these records it has been possible to track down and investigate some interesting transfusion reactions. It is noteworthy that in 2,300 transfusions notified in the last 2¼ years there has not been a single instance of death due to transfusion of cells of an incompatible blood group. There have been some cases of death from pulmonary oedema and cardiac failure due to circulatory overloading in chronically anaemic subjects; also, there have been a few haemolytic reactions—e.g., jaundice or haemoglobinuria—following the use of Group O or of homologous blood.

Whitby (1941), in an address to the Shaftesbury Military Hospital Medical Society on transfusion for battle casualties, noted that these subjects contrasted with those commonly requiring transfusion in peacetime practice in that they had been previously healthy and had no cardiac disability; it was therefore safe to give at least two pints of blood or plasma quickly to anyone with a blood pressure consistently below 100 mm. Hg, and then to carry on with a slower drip transfusion. It is common knowledge that one problem which sometimes confronts a resuscitation officer when dealing with air-raid casualties is how to get the fluid in quickly enough. Indeed, positive pressure may have to be used, and it may be necessary to introduce a pint of plasma or blood in 15 minutes.

The reason why no cardiac embarrassment occurs in Service casualties is, of course, simple. First, the introduced fluid replaces lost fluid. Secondly, the myocardium is invariably normal and therefore functions efficiently. It is well known in clinical medicine that it is impossible to strain a normal heart. This has been abundantly proved experimentally. I quote here from Starling (1930):

"Experimentally it is found that the isolated heart has a marvellous power of adaptation—i.e., regulating its activity according to the mechanical demands which are made upon it. Thus if we keep the venous inflow constant it makes no difference to the output of the heart whether the average arterial pressure be maintained at 80 or 160 mm. Hg, although in the latter case the heart must do twice as much work in order to keep the outflow at the same level. Again, if we maintain the arterial pressure constant and alter the venous inflow, we find that within very wide limits the heart is able to expel against the arterial resistance the whole of the blood which flows into it from the veins. In this way we can alter the output of a small heart weighing 50 grammes from 300 to 3,000 c.cm. per minute."

Further, Hayward (1942) showed that even in only reasonably healthy subjects serum or plasma could be introduced fairly rapidly. He transfused 50 subjects suffering from chronic arterial disease each with 800 c.cm. of pooled serum, the fluid being introduced at a rate of 5 to 15 c.cm. a minute. The incidence of rigors was 30%. If the serum was injected slowly the cardiovascular system adjusted itself to the increased blood volume readily, there being no increase of venous pressure, and the blood pressure in most cases showed no significant change.

* A paper read at a meeting of Regional Transfusion Officers held at Leeds on March 4, 1943.

Overloading after Rapid I.V. Injections

Sharpey-Schafer and Wallace (1942) investigated the question of circulatory overloading following rapid intravenous injections. They used subjects without cardiovascular disease, and up to 2,000 c.cm. of saline, serum, or blood was injected at rates of from 54 c.cm. to 168 c.cm. a minute. The venous pressure was raised up to 11 cm. H_2O when there was considerable retention of injected fluid in the circulation, as indicated by the fall in the Hb. Radiographs showed an increase in the diastolic size of the heart, enlargement of pulmonary arteries, and prominence of the vascular markings in the lung fields. Vital capacity was diminished, but there was no pulmonary oedema. Despite rise of venous pressure many subjects had no increase in heart rate. However, 4 out of 12 had electrocardiographic signs of heart stress. There were no important symptoms. Those authors stated: "There is evidence that the peripheral and pulmonary capillaries and veins dilate to accommodate the increased blood volume." Lastly, Kilduffe and DeBakey mention that they have infused 650 c.cm. of blood in three minutes! They point out that when myocardial disease is present transfusions must be given with caution; but, apart from this, the suggestion of the danger of embarrassing and overloading the cardiovascular system by rapid transfusion has no rational basis, and they therefore rightly condemn the term "speed shock."

It is apparent, therefore, that, if the myocardium is normal and is functioning efficiently, there is nothing to be feared from rapid transfusion or from overloading the circulation.

Risks of Transfusion in Anaemia

The position is, however, quite otherwise when the functional efficiency of the myocardium has been affected by long-standing anaemia or severe toxaemia. Very grave risk indeed may attend the rapid transfusion of the chronically ill and severely anaemic subject. The risk seems to be particularly grave in pernicious or aplastic anaemia, in severe anaemia consequent on chronic and oft-repeated haemorrhage—e.g., of uterine or gastric origin—in malignant disease associated with cachexia and haemorrhage, and in puerperal cases associated with the effects not only of much haemorrhage but also of sepsis.

Plummer (1936) reported five deaths from heart failure after transfusion in chronically anaemic subjects. Careful preliminary tests were performed and there was no incompatibility. Death occurred, often with pulmonary oedema but without evidence of haemolysis, from 30 minutes to 19 hours after transfusion. It was noted that few such cases had been reported; but this was not a true index of their incidence, for these cases were seen in a two-and-a-half-year period at one hospital. They were typical examples of the danger of rapid transfusion or circulatory overloading in subjects with enfeebled cardiac action due to long-standing anaemia. One case well illustrated the very grave danger of transfusion when circulatory failure was already present.

According to Riddell (1939) the commonest cause of a fatality following blood transfusion is circulatory failure. It may be due to overloading of the circulation or it may be secondary to a rigor. Whitby (1942) has pointed out that "too fast a rate can cause a rigor, which ceases instantly if the rate is slowed." As Riddell rightly contends, if the blood volume is normal—i.e., not depleted by haemorrhage—the production or not of circulatory failure after the intravenous infusion of fluid will depend on three factors—namely, the volume of blood introduced, the rate of its introduction, and the mechanical efficiency of the myocardium at the time. Marriott and Kekwick (1940), in their admirable paper on rate and volume of transfusion of blood in anaemia, laid down four important cardinal principles for the transfusion of severely anaemic subjects. These are: (i) rate not to exceed 1 c.cm. per lb. of body weight per hour; (ii) if the Hb is 25% or less, and if there is cachexia or cardiac or respiratory disease, the rate should not exceed 0.5 c.cm. per lb. of body weight per hour; (iii) maintain steadily the determined rate of transfusion and do not accelerate for short periods; (iv) watch carefully for signs of heart failure (dyspnoea, cough, basal rales) and suspend transfusion if they appear. They consider that the giving of a pint in half an hour is irrational and unsatisfactory. All too often these important principles are neglected.

Too Rapid Transfusion in the Anaemic

The following cases illustrate the dangers of too rapid transfusion in the severely anaemic and chronically ill subject.

Case 1.—A man aged 54 was admitted to hospital suffering from chronic anaemia and cachexia due to carcinoma of the stomach. He weighed about 10 st. and had lost some 3 st. in weight. The Hb was 50% and the blood group was O. Transfusion of 10 oz. of Group O whole blood was given in 30 minutes. He then experienced severe pain in the chest and headache. He had a moderate rigor, which lasted about half an hour, and was left with a feeling of tightness in the chest. The transfusion was stopped. Next day he still complained of tightness in the chest, and rhonchi were audible in both lungs. He recovered. Careful cross-matching tests after the transfusion showed no incompatibility. The patient died 16 days later of unrelated causes. There was no necropsy.

Comment.—If one works on the principles laid down by Marriott and Kekwick—i.e., 1 c.cm. per lb. of body weight per hour—this patient should have received 140 c.cm. in an hour, or 70 c.cm. in half an hour. In fact, he received 280 c.cm. in half an hour—i.e., the transfusion was given at four times the rate it should have been given.

Case 2.—A multipara aged 39 was admitted urgently for treatment of profound secondary anaemia. The patient stated that she had had a miscarriage, had advanced in pregnancy seven months, and that she had been bleeding per vaginam for 19 days. However, her doctor subsequently affirmed that, so far as he could ascertain, bleeding had gone on intermittently for several weeks. The blood pressure was 150/80 on admission, the Hb 25%, and the blood group A. The next afternoon a transfusion of Group A whole blood was given. Full cross-matching tests were carried out by an experienced pathologist and there was no incompatibility. The patient had not previously had a transfusion. Four oz. was infused in 10 minutes, when the patient complained of a sense of constriction in the chest, severe precordial pain, and a sense of coldness, which in a minute or so was followed by a rigor lasting a few minutes. Slight cyanosis of the lips was noted. The transfusion was discontinued. An hour later her condition had deteriorated very much: she was semi-comatose, had slight cyanosis of the lips, and the pulse was rapid and feeble. Some 2¼ hours later the condition seemed to have improved, and it was decided to try the effect of a further transfusion. A second bottle of Group A blood was used. Cross-matching tests showed complete compatibility. In the next two hours a further 8 oz. of blood was given. Some 4½ hours after starting the first transfusion the patient died of circulatory failure. *Necropsy:*—Weight of body about 10 st.; nourishment good. There was profound anaemia of all organs except the lungs and liver, which were congested. The lung bases were oedematous; the kidneys normal. The uterus was 5 in. long and contained placental fragments. There was no evidence of intravascular haemolysis.

Comment.—In this case the rate of transfusion was too rapid. The determined rate of transfusion, since the Hb was only 25%, should have been 0.5 c.cm. per lb. of body weight per hour. Thus from the first bottle 114 c.cm. was given in 10 minutes, whereas the rate should have been 70 c.cm. in 60 minutes. The rate of introduction of the blood was about 11 c.cm. a minute, whereas it should have been about 1.5 c.cm. a minute.

Case 3.—A 36-year-old woman had suffered from symptoms of dyspepsia and epigastric pain after meals for two years. Symptoms had become worse in the last four months. Three days before admission she had a very severe haematemesis. It is not known whether she had suffered from melaena or haematemesis previous to this. She was sent into hospital urgently and was found to be profoundly anaemic and weak. The blood count showed 1,600,000 red cells and 22% Hb. She was at once given a transfusion of stored Group O whole blood. The recipient's group is not known, but a cross-matching test between the recipient's serum and the donor's cells showed compatibility. In barely 30 minutes the patient was given 540 c.cm. of blood. Transfusion had just ended when she had a rigor. Her general condition soon deteriorated, respirations became faint and rapid, and 1¼ hours after the cessation of transfusion she was comatose. After a further 5 hours the patient was still comatose and had what seemed to be a slight convulsion. Death occurred 5¾ hours after the end of transfusion. There was no necropsy.

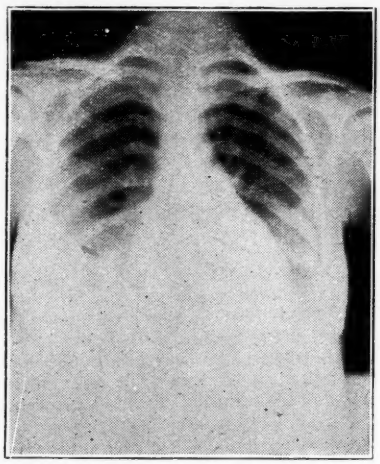
Comment.—The weight of this patient was estimated to be about 9 st. If this is so, and with a Hb of 22%, the rate of

transfusion should have been 0.5 c.cm. per lb. of body weight per hour—i.e., about 70 c.cm. in one hour instead of 540 c.cm. in half an hour.

Cases of Too Large a Transfusion

The next two cases concern the question of overloading the circulation by the factor of transfusion of too great a volume of fluid.

Case 4.—A woman aged 24 was suffering from severe chronic anaemia (pernicious ?), albuminuria, and oedema of pregnancy. The haemoglobin was 22%. A radiograph revealed a much-dilated heart (see Fig.). A transfusion of concentrated red cells,* from



Radiograph showing the severe cardiac dilatation in Case 4.

2 pints of whole blood, was given with especial care at a very slow drip rate after careful cross-matching. Both donor and recipient belonged to Group A. After six hours about 400 c.cm. had been given when the patient complained of a sensation of constriction in the chest and developed a slight irritative cough. The ward sister had been warned to look out for these symptoms, and the transfusion was promptly stopped. The symptoms immediately ceased and there was no ill effect afterwards. The recipient, who was Rh-positive, was much improved.

Comment.—This case supports the opinion that in cases of severe chronic anaemia it is better to give initially repeated small transfusions of about 250 c.cm. than single large-volume transfusions. I think, too, that concentrated red cells should be used in preference to whole blood, so that the maximum number of cells may be given in the minimum volume of fluid.

Case 5.—A man aged 40 was admitted to hospital suffering from severe injuries to the left leg and right ankle. It is not evident that there had been extensive loss of blood. The patient was somewhat shocked. No regular blood-pressure recordings were made, and in the space of two or three hours he received 5 pints of Group O whole blood. The blood group of the recipient is not known. All the donors' blood had been carefully checked and grouped on both agglutinogen and agglutinins by the issuing blood store. It is stated that the transfusion was persevered with because the pulse rate continued to rise. The left leg was amputated above the knee a couple of hours later. The patient died shortly after operation. *Necropsy:*—The body was well nourished and showed rigor mortis. The right auricle of the heart was tremendously distended and ballooned. So great was this distension that the heart-muscle fibres were separated from each other, rendering the wall of the right auricle semi-transparent. The right auricular appendage was grossly distended. A small agonal thrombus was present in the main branch of the right pulmonary artery. The lungs were extremely oedematous, and there was a little aspirated food in the bronchi. The endothelium of arteries and veins showed intense haemoglobin staining. *Histology:*—Right kidney: There was autolysis of the kidney parenchyma. In one area a very small amount of yellowish pigment was seen in the tubules of the medulla. Left kidney: Some of the vessels showed lysis of red corpuscles and the presence of numerous bacilli. In other vessels there was much brown pigment consisting of coarse granules arranged in clumps. The lungs showed oedema, and the blood in all vessels appeared to be haemolysed. There was fat embolism of the lungs, but of only moderate degree.

* All the plasma was siphoned off and half its volume replaced with citrate solution.

Comment.—This case illustrates well the grave dangers of uncontrolled resuscitation—i.e., no careful blood-pressure recordings, etc. There can be no doubt that too great a volume of blood was transfused. The essential cause of heart failure was circulatory overloading due to the introduction of too great a volume of blood. The haemolysis was shown to be a post-mortem phenomenon.

Indiscriminate use of universal donor blood is to be deprecated. Compatibility tests ought always to be performed in routine hospital practice, and homologous blood given if it is desired to raise the haemoglobin level. If facilities for tests are not available, then the services of the nearest blood depot should be utilized. In emergencies—e.g., wound shock and haemorrhage—it is safer and wiser to use serum or plasma in order to achieve the object in view—namely, restoration of blood volume—and in the interim full cross-matching tests may be carried out should whole blood be necessary.

Discussion

A case very similar to that just quoted was described by Tubbs (1942). His patient, a 46-year-old man, suffered from chronic lung abscess. During lobectomy there was moderate blood loss. One pint of saline and 3½ pints of blood were given. After operation his condition was excellent, but on being returned to bed he became cyanosed, pulmonary oedema set in, and thin watery blood-stained fluid accumulated in the air passages. Death occurred two hours after operation. At necropsy the right side of the heart was bloated with blood, and the lungs and air passages were filled with great quantities of blood-tinged oedema fluid. As Tubbs points out, the myocardium of this man was not normal, but had been subjected to the chronic toxic effects of a lung abscess for 12 months. Under such conditions the danger of rapid intravenous injections was only too real. Incidentally A. S. and H. G. Grünbaum (1911), in a forthright article on "post-operative drowning," long ago warned of the grave danger of post-infusional death after intravenous saline injections in cases of surgical collapse. It is evident that this warning needs repetition at the present time.

While the most important cause of transfusion reactions or fatalities is the injection of incompatible blood, it nevertheless seems certain that a common cause of such mishaps is overloading of the circulation. I believe that this remark applies especially when universal donor whole blood is used on anaemic recipients of the A–B system. Not only is there grave danger in overloading the circulation in such cases, but if in addition to this a reaction occurs between the donor's agglutinins and the recipient's cells, then a condition of "haemolytic shock" may be set up. This condition of haemolytic shock in association with a sudden overloading of the circulation from too rapid transfusion may well prove too great a strain on the weakened anaemic myocardium, and circulatory failure may ensue, with fatal result. It should be borne in mind that in severe chronic anaemia the functional capacity of the heart may be seriously impaired and its powers of reserve negligible. The cavities are often much dilated, and the capacity to undergo further compensatory dilatation may be so grossly diminished that the heart becomes unable to accommodate a given volume of blood if too rapidly introduced. Starling has pointed out that an increased diastolic volume means greater length of the muscle fibres of the heart wall. As with voluntary muscle fibres, the energy of contraction is a function of the length of the muscle fibres—a generalization known as "Starling's law of the heart." But in the chronically anaemic myocardium dilatation may be present, possibly of considerable degree (see Fig.). Clearly, under such conditions the heart fibres, already stretched and not contracting to their fullest extent, have little capacity to stretch further. Consequently the right auricle becomes unable to accommodate a large volume of blood suddenly introduced, and fails to expel its contents fully. Failure then ensues. The extra volume of blood must become accommodated somewhere, and, as Sharpey-Schafer has shown, this is done in the vessels of the lungs. Hence the earliest signs of overloading are crepitations due to pulmonary oedema. The precordial pain of which these patients so often complain is presumably due to overdistension of the right auricle and tension on the

pericardial sac. At necropsy fatal cases constantly show cardiac dilatation and pulmonary oedema and congestion. The pulmonary oedema is evidence of left-sided heart failure.

Treatment should comprise prompt cessation of transfusion, the administration of oxygen, and the injection of morphine and atropine. Adrenaline is contraindicated. Venesection may be necessary to relieve the load on the right heart.

A reasonable rate of transfusion in severe chronic anaemias is 40 drops a minute, and the giving of one pint of whole blood should be spread over at least three hours if disasters from circulatory overloading are to be avoided.

I desire to express my thanks to Prof. J. B. Duguid and Dr. J. Gough, of the Department of Pathology, Welsh National School of Medicine, Cardiff, for help and criticism in the preparation of this paper; to Prof. M. Stewart of Leeds, who kindly drew my attention to the Grünbaums' paper; and to Dr. L. Proger of the M.R.C. Serum Drying Unit, Cambridge.

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EFFECT ON THE UTERUS OF EXTRACTS OF GORSE (ULEX GALLII)

BY

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In parts of Yorkshire and Derbyshire infusion of gorse is a traditional remedy for retained placenta in the cow. An apparently successful demonstration of its efficacy aroused our curiosity and led us to test its effect upon isolated strips of guinea-pig uterus. Sustained tonic contraction was consistently produced by addition of the watery extract to the fluid in which the uterus was suspended. The consequent investigation was designed to isolate the active principle and to determine its chief pharmacological actions. These objects have not yet been achieved, but we think that the results obtained so far should be published.

Preparation of Extracts

Terminal shoots of gorse from several bushes were passed through a farm hay-chopper and then through a hand tissue-grinder to give a coarse powder. Aqueous extracts, prepared by boiling the minced gorse in water, N/100 HCl, or phosphate buffer solution *p*H 8.4, were found to be of approximately equal potency when tested on isolated guinea-pig uterus, whereas direct extraction of the gorse with a number of organic solvents failed to yield active products. During attempts to isolate an active principle from the infusions many potent fractions of varying degrees of purity were obtained, but inexplicable irregularities decided us to carry out pharmacological tests on a stock pool of concentrated extracts prepared by the following method, which gives consistently reproducible results and eliminates a considerable amount of inert material.

250 g. of minced tissue are boiled gently for half an hour in 2.5 litres of distilled water. The infusion is strained through muslin and then filtered through a layer of kieselguhr. Approximately 1,800 ml. of clear greenish-brown filtrate with a characteristic odour and acid to methyl red are obtained. Saturated solution of basic lead acetate is added until there is no further precipitation. The voluminous precipitate is filtered off through kieselguhr and discarded. The filtrate, after removal of lead as lead sulphide, is reduced to about 1/50 volume by distillation at 60–65° C. under reduced pressure. To this concentrate 9 volumes of absolute alcohol are added. A flocculent precipitate forms almost immediately, which is filtered off and discarded. The alcohol is removed from the filtrate by distillation at 60–65° C. under reduced pressure; this leaves a brown viscous fluid together with gummy material adherent to the sides of the distillation flask. The gummy material goes readily into solution in distilled water, and the flask washings are used to make up the total volume to exactly 1/50 volume of the original infusion filtrate.

Several batches of gorse extracted in this way yielded concentrates of indistinguishable potency; they were therefore pooled to give the stock concentrate referred to hereafter as "S."

The concentrate, when freshly prepared and still warm, has a characteristic pungent odour which is lost to some extent on storage. It is a clear golden-brown viscous fluid and is acid to methyl red. Alkalinization with NaOH causes a deepening of the colour.

Pharmacological Actions

Technique.—In all tests on isolated tissues duplicate preparations were suspended in either Ringer's or Van Dyke's solution, the capacity of each bath being 20 ml. One-ml. quantities of various dilutions of neutralized extract were used, and the concentrations recorded were calculated on the assumption that a further dilution of 1 in 20 was effected by mixture with the bath fluid. The usual period of observation was two minutes, but effects over longer periods were also frequently studied. The tests on intact cats were made under nembutal anaesthesia, the uterus being kept submerged in Ringer's solution in the abdominal cavity.

Isolated Guinea-pig Uterus.—With the virgin uterus, S 1 in 1,000 invariably causes an immediate tonic contraction, sustained for at least two minutes. The degree of contraction, shape of the contraction curve, and duration of effect depend not only upon the concentration of extract but also upon the phase of the oestrous cycle. Uterus from a guinea-pig in oestrus is more sensitive than uterus removed at other periods of the cycle. Consequently we have found it advantageous to keep a number of spayed animals and to induce oestrus, as required, by inoculations of stilboestrol. With such sensitized preparations concentrations of 1 in 2,000 or even 1 in 10,000 S may produce contraction; concentrations of 1 in 500 or 1 in 200 cause maximal contraction, sustained for more than 20 minutes and without the stepladder effect produced by smaller doses. Washing out the bath is always followed by a return of the normal tone and rhythmical contractions of the muscle. The uteri of pregnant guinea-pigs respond in the same way as those from virgin animals, but may be either more or less sensitive. The differences probably depend upon the period of gestation and may be related to hormonal balance, but the data so far available are not sufficient to correlate these factors. Experiments with parturient uteri give results in striking contrast: the extract produces

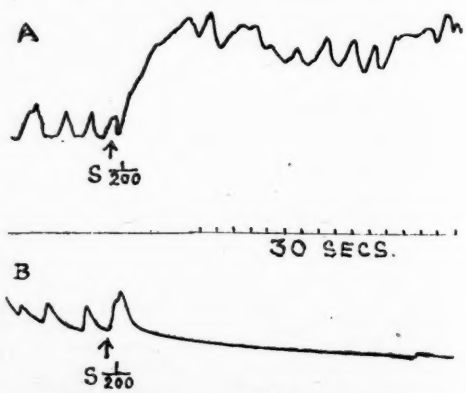

FIG. 1.—Effect of S on guinea-pig uterus. A, Oestrus induced; sustained contraction. B, Parturient; contraction followed by relaxation.

only a small contraction of short duration, which is followed by prolonged abolition of uterine tone. No fewer than 64 guinea-pig tests have been made, with perfectly consistent results except for one or two cases in which the uteri were of such low sensitivity that effects were negligible. The effect of the extract on guinea-pig uterus is not influenced by previous addition of atropine to the bath, nor does the extract modify the response obtained with adrenaline. Typical experiments are illustrated in Fig. 1.

Effects on Uterus and Blood Pressure of the Cat.—A single experiment on the isolated uterus of the virgin cat indicated that it responds like the virgin guinea-pig uterus. In the intact cat intravenous inoculation of 0.2 ml. of S produces tonic contraction almost immediately, which is sustained for several minutes. There is an immediate transient fall of blood pressure, followed by a sustained rise. Further inoculations of extract after uterine tone and blood pressure have returned to normal reproduce the primary effects. It is probable that the transient fall of blood pressure is due to impurities, because some of our more highly purified fractions, which gave typical uterine responses, caused only the sustained rise of blood pressure. We have not had the opportunity of making tests on pregnant or parturient cats. Fig. 2 illustrates these effects.

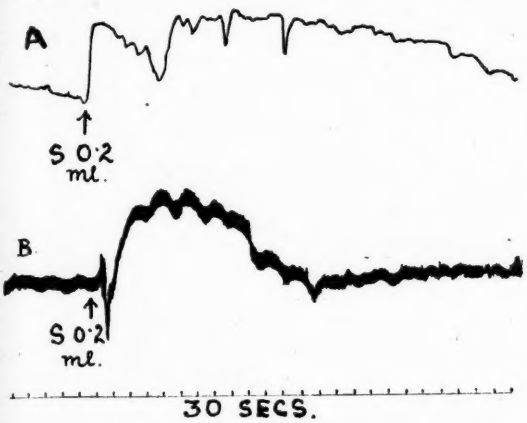

FIG. 2.—Effect of S on intact virgin cat. A, Uterus; B, Blood pressure.

Isolated Human Uterus.—Preparations from 12 human uteri have been tested. In each case a piece of the upper segment was obtained at operation and transported immediately on ice to the laboratory. Two of the specimens were pregnant uteri about a week before full term from cases requiring upper-segment Caesarean section. In seven of the remaining cases the stage of the menstrual cycle was known—five were post-ovulation and two pre-ovulation. The other three were cases of menorrhagia (2) and uterine sarcoma. All the patients were parous women. The effects of S on pregnant and non-pregnant uteri were in sharp contrast. With the former a 1 in 60 concentration of the extract caused vigorous sustained contraction, with retention of rhythmical tone and without any subsequent stage of relaxation. With the latter the same concentration produced an initial contraction of short duration followed by inhibition of tone and sometimes definite relaxation. Relaxation, when it occurred, was prolonged for at least six minutes; in some experiments the effect was maintained for 14 minutes, this being the maximum period of observation. Normal tone with small rhythmical contractions was regained when the bath was washed out. Different uteri varied in sensitivity, some being responsive to much lower concentrations than 1 in 60. The two pre-ovulation specimens were more sensitive than the others, and both showed definite relaxation. With pregnant uterus the addition of the extract after the induction of contraction with posterior pituitary extract caused no relaxation and, as in the case of guinea-pig uterus, its specific effect was not influenced by the previous administration of atropine. Fig. 3 shows the results of experiments with both pregnant and non-pregnant uteri.

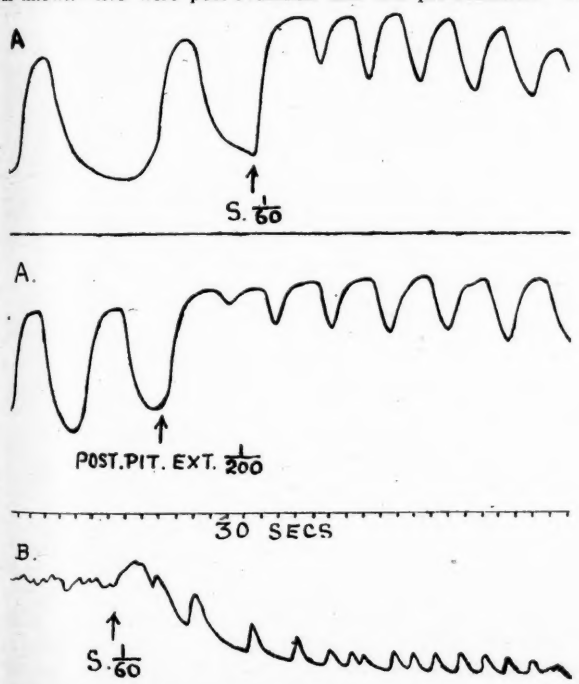

FIG. 3.—Effect of S on isolated human uterus. A, Pregnant uterus one week from term; B, Non-pregnant uterus pre-ovulation.

Isolated Uteri of Other Species.—Tests with other species have been carried out as opportunity occurred. With a non-pregnant cow uterus, of which the stage of oestrous cycle and the parturition history were unknown, no significant response could be obtained, but with a pregnant uterus removed about a week before full term S 1 in 1,000 produced contraction comparable to that given by pregnant human uterus. Results with the rabbit have been less regular than with other species. Occasionally relaxation and abolition of tone have followed addition of extract, and even a 1 in 20 concentration of S caused only slight contraction in the uterus of a spayed animal. On the other hand, a 1 in 200 concentration produced vigorous and sustained contraction in the other uterine horn of the same animal, removed after oestrus had been induced. Only a single experiment has been made with dog uterus; it responded like guinea-pig uterus, but required much higher concentrations of extract to produce the contraction.

Isolated Guinea-pig Intestine.—Extract S may cause tonic contraction of guinea-pig intestine, but specimens vary widely in sensitivity. Our results suggest that the intestine is much less sensitive than guinea-pig uterus, especially when the latter is in oestrus.

Toxicity Tests

Only preliminary tests on mice have been made. With all routes of inoculation except intranasal, doses have been given in a volume of 0.5 ml.; intranasal inoculations were 0.05 ml. Subcutaneously 0.5 ml. of S (=3.5 g. gorse approx.) causes no observable effects. By intraperitoneal inoculation the same dose kills mice within a few minutes, while 0.1 ml. and 0.05 ml. cause temporary distress with laboured respiration, followed by recovery. Intravenously 0.05 ml. kills within a few minutes, the animals dying in convulsions; 0.025 ml. causes temporary distress; 0.0125 ml. is without observable effect. The administration of 0.05 ml. intranasally under ether anaesthesia is followed by gasping respiration lasting for about half an hour, after which the mice recover and thereafter seem none the worse. The clinical symptoms suggest that toxic doses cause spasm of the bronchioles. Tests by oral administration and by the use of more highly purified extracts have not yet been made.

Methods of Further Purification of Extracts

While attempts to isolate the active principle have so far been unsuccessful they have indicated methods by which further purification may be achieved. Following the precipitations with basic lead acetate and alcohol, a further small amount of impurity may be precipitated out with 9 volumes of acetone. It is clear, therefore, that the active substance is soluble in both 90% alcohol and 90% acetone.

After treatment with lead acetate the addition of a saturated solution of mercuric acetate throws down a precipitate containing the activity from which purified extracts may be obtained. It is probable that the active principle is carried down by adsorption on inert material, for attempts to use mercuric acetate as a specific precipitant on more highly purified preparations were unsuccessful.

The active principle is soluble to some extent in ether, but the optimum conditions for ether extraction from watery solution have not yet been determined, so that very irregular results have been obtained. The most potent fractions produced so far have been obtained by prolonged ether extraction of concentrate S brought to *p*H 10 with NaOH, in a Kutscher and Steudel (1903) extraction apparatus. Subsequent removal of the ether by distillation leaves a pungent dark-brown oily material which goes completely into solution in distilled water. This aqueous solution is almost colourless and is distinctly acid to methyl red. Similar extractions with amyl alcohol and

petroleum ether failed to yield any active products. Extraction of the dry gorse with organic solvents is at present being investigated.

Discussion

This preliminary investigation indicates that *Ulex gallii* contains at least one active principle with pharmacological activity, chiefly on the uterus, in several species, thus affording some rational basis for its empirical use in farmyard obstetrics. The definite effects of extracts upon isolated human uterus suggest a possible extension to human obstetrics, but further work on chemical fractionation and purification is desirable before clinical tests are made, because there are some indications that the extracts thus far obtained may contain more than one pharmacologically active substance. From the common gorse, *Ulex europaeus*, Clemo and Raper (1935) isolated anagyrine and another crystalline base, but no pharmacological tests appear to have been made on them. There is, of course, no present indication that the active substance is an alkaloid, but its extraction with ether from alkaline aqueous solution suggests that it is a base, the acidity of the extract being due to a weak organic acid present as an impurity.

In its action on isolated guinea-pig uterus and its toxic effects in mice gorse extract behaves like the raspberry-leaf extract studied by Burn and Withell (1941), but the two extracts seem to be quite dissimilar in their actions on cat uterus *in situ*, isolated uterus of dog and rabbit, and isolated intestine. Burn and Withell reported that the dominant action of the raspberry-leaf extract was relaxation of uterine muscle, whereas our substance is chiefly oxytocic; unfortunately they made no tests on the human uterus. Nevertheless, in view of the effects of oestrus and gestation upon the action of gorse extract the possibility of an active principle common to the two plant species cannot be definitely excluded.

The mode of action of the extract remains to be elucidated. Atropine does not affect the reactivity of either guinea-pig or pregnant human uterus, and the response of human uterus to adrenaline is not influenced by the extract. The relaxation effect on parturient guinea-pig and non-pregnant human uteri invalidates comparisons with pituitary extract. However, to gain some idea of the oxytocic activity of gorse extract comparative tests were carried out on both guinea-pig and human uteri; they indicated that the activity contained in 1 ml. of S was roughly equal to 0.3 unit of pituitary extract. The increased sensitivity of uteri from guinea-pigs in oestrus and the altered reactivity of uteri from parturient guinea-pigs and from women near full term are of special interest; they suggest that the effects of administration of gorse extract may be largely determined by the balance of gonadotrophic hormones, thus widening the field of possible clinical application. The advantages of a common plant as the source of an oxytocic drug are obvious, provided a satisfactory method of extraction becomes available.

Summary

Extracts of gorse (*Ulex gallii*) have a specific pharmacological action on uterine muscle. An active principle has not yet been isolated, but relatively pure extracts have been obtained.

The dominant action is one of uterine contraction, demonstrable on the isolated uteri of several species, including pregnant women near full term. With uteri from non-pregnant women initial contraction is followed by abolition of tone and usually definite relaxation. A similar reversal of effect is shown by the uteri of parturient guinea-pigs. In intact virgin cats intravenous administration results in uterine contraction accompanied by a sustained rise of blood pressure.

Uterine reactivity to gorse extract appears to be conditioned by the balance of gonadotrophic hormones, being greatly increased by oestrogen sensitization.

It is a pleasure to record our indebtedness to Mr. L. B. Patrick, by whose courtesy all the human uteri were obtained. Our thanks are also due to Mrs. Wilson Smith for technical assistance and to B. Ibbotson, Esq., of Ashopton, for his help in the collection and preliminary treatment of the gorse. The expenses of the work were defrayed by grants from the Medical Research Council.

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AN ANALYSIS OF ACUTE RESPIRATORY CONDITIONS IN AFRICAN SOLDIERS

BY

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Before proceeding to the Tropics medical officers almost invariably are sent to a course on tropical medicine, and are taught at length the various tropical diseases which they are likely to encounter; but no stress at all is laid on the incidence of the common respiratory affections nor on the susceptibility of the African to these. It therefore comes as a surprise to them to find that almost a third of their acute medical admissions comprise conditions similar to those seen at home. The object of this paper is to emphasize the importance of these conditions and to demonstrate the response to treatment as compared with that of Europeans. It is based on the occurrence of respiratory diseases in Africans treated at a West African general hospital over a nine-months period from June 1, 1942, when the hospital was opened. This period covers the changing climatic conditions, including the maximum and minimum temperatures and humidities.

The total number of admissions to the African Medical Division of the hospital during the period under review, excluding dermatological cases, was 1,250, and of these the high figure of 375 (30%) were respiratory infections, including the upper respiratory conditions—e.g., coryza, sinusitis, and tracheitis. Of all these respiratory infections one only was an example of tropical disease. This patient was a soldier admitted with profuse haemoptysis, and was found to be suffering from paragonimiasis, which responded rapidly to emetine therapy. The remaining non-tropical cases were divided as follows:

I.	Acute lobar pneumonia	76
II.	Bronchopneumonia	52
III.	Acute pleurisy	12
IV.	Bronchitis	159
V.	Pulmonary tuberculosis	7
VI.	Lung abscess	1
VII.	Minor upper respiratory infections	67

Acute Lobar Pneumonia

The physical signs in these cases show no difference from the classical signs seen in a European, apart from a higher incidence of upper-lobe consolidation. The African patient in many instances would report sick at an M.I. room or the reception tent of the hospital, and on examination be found to have complete consolidation of one or more lobes of the lungs. Although this is occasionally met with at home it is much more common among African patients. The commonest complaint when questioned is pain in the chest, even in the absence of an audible friction rub. Little importance can be attached to an increased respiration rate, as this is common to all febrile conditions in Africans and they rarely complain of cough.

Treatment was by oral administration of sulphapyridine in full doses, and in very severe cases the intravenous route was employed for the first one or two doses. The response to this was more dramatic than in the European; for it was a common experience to find the patient on the danger list out of his bed whenever his temperature dropped to normal, although all the signs of consolidation were still present, and in no case were any ill effects of this seen. In spite of the apparent rapid recovery of these patients, radiological examination proved that resolution was no quicker than in the European, in whom the disease *appears* to run a slower course. It was found that the mean period of stay in hospital in these cases of lobar pneumonia was 21.8 days.

In this series of 76 cases there were only two deaths; one of these occurred within a few hours of admission, and at necropsy the case was found to have been complicated by

pneumococcal meningitis. The other patient, who was admitted in a desperately ill condition, died after four days, showing no response to sulphapyridine. Post-mortem examination revealed red hepatization of one lung and extensive fibrosis of the other, with dense, almost cartilaginous, pleural adhesions. Only two cases showed any complications. One developed a sterile effusion which absorbed satisfactorily, and was only 35 days in hospital; the other developed a lung abscess which finally healed by fibrosis after many weeks.

As the hospital was situated in a hyperendemic M.T. malarial area all patients had routine blood films examined for malaria parasites. Parasites were found in only two cases, which were treated with quinine in addition to sulphapyridine.

Bronchopneumonia

The 52 cases in this group were acutely ill on admission and showed signs of generalized bronchitis with areas of patchy consolidation in both lungs. A productive cough was a prominent feature. They were treated by the oral administration of sulphapyridine, which was followed by a drop in temperature less dramatic than that in lobar pneumonia, but their recovery was rapid and complete. Only one case showed any complication, and that was an interlobar effusion which absorbed completely without interference.

There was no single death in this group, whose mean stay in hospital was 20.5 days.

Pleurisy

In every one of the 12 cases the symptoms were fever and pain in the chest, and a dry friction rub was found on physical examination. In no instance did an effusion develop. The treatment consisted of sedative cough medicine and heat in the form of kaolin poultices. The majority of these patients were examined radiologically and showed no evidence of any tuberculous focus.

The mean stay in hospital was 17.2 days, and none had been readmitted for a chest complaint over a follow-up period of from 2 to 6 months.

Pulmonary Tuberculosis

The 7 cases of pulmonary tuberculosis were confirmed by radiographs and sputum examination. With one exception they all had extensive lesions of the exudative type, with little evidence of resistance. The one exceptional case had an acute flare-up of a chronic fibroid phthisis, which settled down again with rest in hospital. One of the more active cases was admitted with a massive pleural effusion, which partly absorbed and recurred on three occasions. Contrary to tradition and our expectations, the incidence of pulmonary tuberculosis is low, and when seen was of the acute adult type, and no case of Ghon's focus or other evidence of the primary infection of childhood was seen.

All these cases were medically "boarded" and invalided from the Service.

Lung Abscess

One soldier was admitted in a very toxic state, having just returned from a month's leave in a bush village up-country. On examination he was found to be emaciated, with a swinging temperature and copious foul sputum. Radiographs showed two cavities with fluid levels in the right lung. He did not respond to treatment, and died ten days after admission. At necropsy a large abscess cavity was found in the right upper lobe, extending down to involve the middle lobe, and this had burst into the pleural cavity just before death. The left lung showed scattered areas of bronchopneumonia.

Bronchitis

This was the largest group in the series, and consisted of 159 cases. Five of these cases were acute exacerbations of chronic bronchitis, and the men were invalided from the Service; of these five, three had a superadded asthmatic condition. The remaining 154 patients had acute infections, one having an associated asthmatic element not severe enough for invaliding. They all responded readily to expectorants and inhalations, and required only a few days in bed. In four instances malaria parasites were found in routine blood films, and these patients responded to quinine.

The mean stay in hospital of these bronchitic patients was 11 days.

Minor Upper Respiratory Infections

This group included cases of coryza, pharyngitis, tracheitis, and sinusitis. They had been sent to hospital owing to a considerable pyrexia, which in practically all instances lasted at most 24 hours, when the patients were convalescent, apart from the very small number (five) suffering from sinusitis. In none of these cases were malaria parasites found.

Discussion

There is clear evidence that the African is much more susceptible to acute respiratory infections in the Tropics than the European. During the period under review there were only a few cases of bronchitis and minor upper respiratory infection and no cases of pneumonia or bronchopneumonia in the European wards of the hospital. Chill would appear to be a very important precipitating factor, as shown by the three peaks of high incidence of respiratory infection during the nine-months period. Two of these peaks were associated with the arrival of fresh troops after transit by sea entailing sleeping on deck, when the night cold of a moving ship affects the African severely. The third peak occurred in January, when the weather is at its coldest and the Europeans are at their fittest, with a low sick rate.

It is worthy of note that in all this series only six showed malaria parasites, whereas in the European any acute infection, by lowering the general resistance, allows latent malaria to manifest itself.

Although respiratory infections are seen to be the cause of much sickness, with removal to hospital and temporary loss of man-power, they respond readily to treatment. Serious complications are rare and the death rate low, and the permanent loss of man-power to the Army is very small.

Summary

Of 1,250 admissions to the African wards of the medical division of a general hospital in West Africa, 375 (30%) were acute respiratory infections.

Only one of these cases was of tropical origin, being an instance of paragonimiasis.

There were only two deaths among 76 cases of acute lobar pneumonia (2.6%). No deaths occurred in 52 cases of bronchopneumonia. The third death in the whole series was that of a soldier admitted with advanced lung abscess.

Complications were very rare: among the lobar pneumonia cases, one lung abscess and one sterile effusion; and one interlobar effusion in a case of bronchopneumonia.

An important aetiological factor in these respiratory infections appears to be a degree of chill not affecting Europeans.

The mean stay in hospital for the various groups was as follows: lobar pneumonia, 21.8 days; bronchopneumonia, 20.5 days; pleurisy, 17.2 days; bronchitis, 11 days.

Our thanks are due to Brig. R. A. Hepple, O.B.E., *M.C.*, late R.A.M.C., for permission to publish this article.

NIGHT VISION IN THE ARMY

REPORT OF 10,333 TESTS

BY

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The purpose of this article is to give additional facts to those already published by Rycroft (1942) and Craik (1943) on the conditions of the Army night-vision test and to place on record the results of a large number of tests.

Rycroft has already given an account of the Army night-vision test apparatus. In this series a certain modification of the technique described by him was employed, and is mentioned below. The brightness figures in Table I have kindly been supplied by Dr. K. J. W. Craik of the Psychological Laboratory, Cambridge, who designed the test. He has asked us to emphasize that these figures are approximate only, because the

filter material (neutral cellastoid) through which the pentagon screens are regarded is not perfectly neutral. It is slightly blue. He points out that, in comparing the results obtained by different types of adaptometer, the colour of the light can make a big difference to the visibility of the light at low illuminations for a constant brightness at high illuminations.

It is also emphasized that the test is one of scotopic visual acuity and not of minimum light threshold. Though this is so, the brightness of the screens as seen through the filter (see below) corresponds closely with the absolute light threshold of 1 to 10 micro-millilamberts (Duke-Elder, 1942).

TABLE I.—*Showing Brightness Figures. (The pentagon screens are tabulated in ascending order of brightness)*

Screen	Brightness of Screen	Brightness as seen through Filter
1	0·012 e.f.c.	−5·52 log. e.f.c. = 3·0 μml.
2	0·021 ,,	−5·28 ,, ,, = 5·2 ,,
5	0·031 ,,	−5·10 ,, ,, = 8·0 ,,
3	0·051 ,,	−4·90 ,, ,, = 12·5 ,,
4	0·095 ,,	−4·621 ,, ,, = 24·0 ,,

The subjects in this series were from first-class units demanding a high standard of physical fitness and composed largely of volunteers. The purpose of the test was to find men who could be recommended as especially suitable for responsible posts in night operations and to eliminate from operational personnel men with poor night vision. The procedure was briefly as follows:

The men were taken in groups of five or six. Each group was dark-adapted for 30 minutes in dark goggles of a density which, with the lighting conditions, resulted in the first 10 minutes being spent in dim twilight and the last 20 in darkness. Each subject was then tested separately; his goggles were removed and he regarded the pentagon through the windows of a viewing-screen. An easy side of the pentagon was presented to him first, after which the sides were presented in any order. Five seconds was the maximum allowed for any one side at a time. Marks were awarded according to the most difficult side for which two consecutive correct answers were given. Each subject was handed a ticket showing his marks. The group left the dark-room together, and handed their mark tickets to the recording clerk. A group could be tested in this way within five minutes. One hundred and fifty is a convenient number of men to test in a day, but over two hundred can be dealt with without undue fatigue.

TABLE II

Age	Total	5/5	4/5	3/5	2/5	1/5	0/5	Av. Marks for Each Age
18	43	20	14	8	1	0	0	4·23
19	492	213	165	78	26	7	3	4·10
20	941	339	339	141	45	13	4	4·12
21	933	353	339	147	66	18	10	3·99
22	1,269	450	448	236	96	24	15	3·91
23	1,099	359	385	220	94	25	16	3·83
24	766	235	282	140	75	18	16	3·77
25	664	210	215	146	64	15	14	3·75
26	779	232	283	172	73	12	7	3·81
27	646	169	238	143	72	18	6	3·71
28	588	171	207	128	52	19	11	3·72
29	479	127	179	100	56	11	6	3·70
30	382	100	135	86	45	9	7	3·66
31	272	78	86	59	29	14	6	3·61
32	241	57	91	45	30	8	10	3·54
33	158	43	53	34	14	11	3	3·60
34	132	31	48	32	12	4	5	3·57
35	120	28	38	26	19	6	3	3·45
36	102	16	42	27	9	5	3	
37	67	16	21	19	6	1	4	
38	64	18	21	19	1	3	2	3·53
39	35	6	15	8	4	2	0	
40	19	4	7	5	1	2	0	
41	12	6	2	1	2	1	0	
42	11	2	4	4	0	0	1	
43	6	2	3	1	0	0	0	
44	2	1	0	0	0	1	0	
45	3	0	1	1	0	0	1	
46	1	0	1	0	0	0	0	3·36
49	1	0	0	0	0	1	0	
50	2	0	0	1	1	0	0	
51	2	0	1	0	1	0	0	
52	1	0	0	0	1	0	0	
55	1	0	0	0	1	0	0	
Total	10,333	3,346	3,663	2,027	896	248	153	

The viewing-screen mentioned above is glazed with goggle-glasses—" triplex," the middle element being a neutral cellastoid filter. Its advantage over goggles is that the space around the eyes is not closed. Fogging is thus prevented or greatly diminished, and can easily be attended to by means of a good-quality " anti-dim " substance. It also ensures that the same density of filter is used for all subjects. The results of this series of tests are shown in the accompanying Tables and Graphs.

TABLE III.—*Distribution of Marks in Total*

5/5	4/5	3/5	2/5	1/5	0/5
32·4%	35·4%	19·6%	8·7%	2·4%	1·5%

TABLE IV.—*Distribution of Marks in Age Groups*

	5/5	4/5	3/5	2/5	1/5	0/5
18–22	39·0%	35·5%	16·6%	6·3%	1·7%	0·9%
23–27	30·4%	35·3%	20·5%	9·6%	2·2%	1·4%
28–32	27·1%	35·5%	21·3%	10·7%	3·1%	2·0%
33–37	23·1%	34·9%	23·8%	10·3%	4·6%	3·1%
38–55	24·4%	34·4%	25·0%	7·5%	6·3%	2·5%

A large majority of the subjects had visual acuity of 6/12 or better in both eyes, without glasses, so that no comparison can be made of scotopic with photopic visual acuity.

The fundi of all the men who received low marks were not examined, but in those that were examined no pathological changes were found. Where there are no fundus changes the cause of poor night vision is often obscure, and it is often difficult in such cases to assess the truth of the subject's answers. While most of the men with 1/5 and 0/5 stated that they did not see well in the dark, a few were emphatic that they had no difficulty, and it is probable that 0/5 just includes the minimum end of the range of normal scotopic vision.

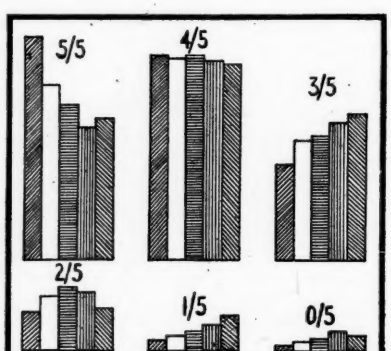

FIG. 1.—Table IV in diagrammatic form.

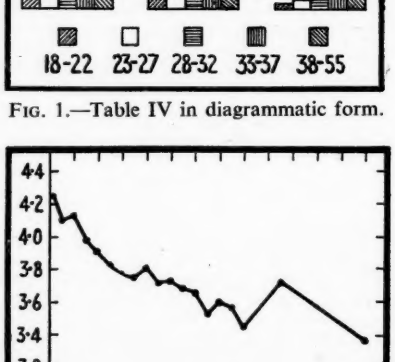

FIG. 2.—Results in graphic form. Ordinates = Average marks out of five. Abscissae = Age groups.

If the brightness is raised two stages, so that that of screen No. 4, as seen through the filter material, is between 60 and 70 μml., 1/5 comes within the range of the pathologically night-blind, since this screen has been found to be visible under these conditions to one or two cases of retinitis pigmentosa.

The results correspond fairly closely with those obtained by Steadman (1943) using a different adaptometer. Rycroft

obtained a considerably higher proportion of men with 0/5—7% in even his best group. This discrepancy is probably mainly due to difference in technique, and emphasizes the advantage of the viewing-screen over goggles. In spite of constant attention the latter become fogged and are a source of error.

The chief interest of this series of results is the illustration it gives of the downward trend of scotopic vision which occurs with advancing years. According to these results the drop begins before the age of 18. Since, however, the drop from the average at 18 to that at about 44 is only in the region of 3 μml., this point is of theoretical rather than of practical importance.

Summary

The brightness figures of the Army night-vision test are given, with a qualifying remark on the colour of the light in adaptometers. Though the test is one of form sense it appears that the minimum light necessary for the discrimination of a simple form is in the region of the absolute light threshold.

The results are recorded of 10,333 tests, the subjects of which were high-category men between the ages of 18 and 55. They illustrate the downward trend of scotopic vision which occurs with advancing years.

We wish to thank Brig. Sir Stewart Duke-Elder, Consultant Ophthalmic Surgeon to the Army, for permission to publish this article; also Dr. Craik, to whom the first part of the article is due.

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FILARIASIS IN THE MIDDLE EAST

BY

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AND

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It is not unusual to meet with cases of clinical filariasis among African native troops in the Middle East, and one of us (J. F.) has seen them in all three hospitals to which he was temporarily attached.

In view of the high incidence of microfilariaemia among natives in certain regions of Africa reported in the literature, it was considered of interest to carry out a routine examination of the blood of all negro patients in the wards of a general hospital, irrespective of the condition for which they were admitted. At the same time information was obtained of the country of origin in each case and the period that had elapsed since they left their homes: in practice this period corresponded to the time of enlistment. The findings are shown in Table I.

An inspection of the table revealed that: (1) 12 cases (29%) out of 42 showed the presence of microfilariae; (2) 30 out of the 42 patients came from Uganda, and all the positives were in this group—i.e., Uganda soldiers showed 40% infestation with filaria; (3) of the 12 cases of filariaemia only two had clinical filariasis; (4) the patients with filariaemia had left Uganda from 10 months to 2 years and 8 months previously.

An attempt was made to determine the species of filaria present by doing relative counts morning and evening. The results appear in Table II, the number of filaria recorded being the total found in an entire uniform wet film.

It is clearly impossible to infer the species in more than three cases in this series: of these three one was *L. loa*, the other two *W. bancrofti*. Unfortunately there was no opportunity of continuing the investigation to determine the diagnosis by more frequent counts or by staining methods.

One point of interest that emerges is the large number of instances (10) in which only one larva was present in an entire wet film. In those cases an average of 15 minutes elapsed before the larva was found, and it is not unlikely that a less leisurely examination would have yielded more negative results: five such negative results were in fact reported by a laboratory assistant whose speedy disposal of 20 films (in about 50 minutes) roused suspicions as to the reliability of his findings. In view of the number of films with only one larva in the entire specimen it seems probable that some of the negative results might have been positive if a greater volume of blood was examined, or if a concentration method was used at which a quantity of blood was haemolysed and a centrifuged deposit examined. The use of thick films, dehaemoglobinized and stained, should also increase the number of positives in a filarial survey.

TABLE I

No.	Ag	Country of Origin	Years since leaving Home	Presence of Microfilaria in Blood	Clinical Diagnosis
1	36	S.W. Africa	18/12	—	Corneal ulcer
2	25	Uganda	10/12	—	Inf. hepatitis
3	37	,,	15/12	—	Sciatica
4	20	,,	15/12	—	N.Y.D. headache
5	22	,,	11/12	—	Herpes zoster
6	21	,,	1	—	Lobar pneumonia
7	20	,,	15/12	—	,,
8	26	,,	15/12	—	Clin. malaria
9	21	,,	11/12	—	,,
10	24	,,	15/12	+	Pneumonia (conv.)
11	21	,,	15/12	+	Filariasis
12	25	,,	11/12	—	Pneumonia (conv.)
13	24	,,	2	—	N.Y.D. haemoptysis
14	18	,,	10/12	+	Pneumonia (conv.)
15	20	,,	2	—	Taenia infest.
16	25	,,	32/12	+	Inf. hepatitis
17	19	Kenya	11/12	—	Taenia infest.
18	22	Uganda	1	+	Cellulitis
19	20	,,	15/12	—	Arthr tis
20	25	,,	11/12	—	Clin. malaria
21	21	,,	2	+	Filariasis
22	22	Kenya	1	—	Diarrhoea N.Y.D.
23	26	,,	2	—	Dysentery N.Y.D.
24	23	Uganda	11/12	—	,, ,,
25	18	,,	9/12	—	,, ,,
26	42	,,	15/12	+	Shiga dysentery
27	33	,,	3	—	Dysentery N.Y.D.
28	20	,,	21/12	+	Inf. hepatitis
29	25	Seychelles	5/12	—	Dysentery N.Y.D.
30	23	Tanganyika	1	—	Ankylostomiasis
31	23	Swaziland	1	—	Schistosomiasis
32	25	Uganda	15/12	+	Arthritis
33	25	,,	15/12	+	Bronchiectasis
34	22	,,	10/12	+	? Tb. chest
35	25	Kenya	13/12	—	Bursitis shoulder
36	23	Uganda	11/12	—	Mumps
37	19	Kenya	10/12	—	Pneumonia (conv.)
38	42	Bechuanaland	15/12	—	Cataract
39	30	Uganda	8/12	—	?
40	20	Kenya	1	—	Dysentery N.Y.D.
41	25	,,	25/12	—	,, ,,
42	20	Uganda	1	+	,, ,,

The transmission of filariasis is by a wide range of insects. Manson-Bahr instances 24 species of mosquito capable of transmitting *W. bancrofti*, and these include 8 culicines, 11 anophelines, 3 aëdes, and 2 mansonioides: among those are *Culex fatigans*, transmitted by mangrove-flies only (*Chrysops*), while the intermediate hosts of *A. perstans* are limited to the midge genus *Culicoides*. It is clear, therefore, that malarious areas such as occur in the Middle East are likely to favour the dissemination of *W. bancrofti* infection, and, even though the incidence of clinical filariasis is not high among infested individuals, it does not seem desirable to expose non-filarial districts to the consequences of introducing heavily infested bodies of troops such as the Uganda natives.

TABLE II

No. of Case	Original Serial No.	Filaria Count		Species Present
		9 a.m.	9 p.m.	
1	10	3	3	?
2	11		38	W. bancrofti
3	14	1	1	?
4	16	1	0	?
5	18	1		?
6	21	20		L. loa
7	26	1	14	W. bancrofti
8	28	5	2	?
9	32	1	0	?
10	33	1	0	?
11	34	1	1	?
12	42	1	2	?

The scope of the present investigation is admittedly too limited to justify any sweeping recommendations such as the cessation of recruiting in endemic filarial areas of Africa. Nevertheless it does seem desirable to introduce a routine blood-film examination for natives in such areas and to assign infected cases for local duty only. Whatever precautions might be taken with infected troops (segregation, mosquito netting), the great length of time, extending into years, during which filariae are present in the blood stream renders the probability of eventual dissemination one of definite proportions.

Summary

Forty-two sick African native soldiers in a Palestine general hospital were examined for microfilaria and 12 positives were obtained.

Thirty out of the total came from Uganda, and all the infected cases were in this group.

Only two of the positives were cases of clinical filariasis, but it did not seem very likely (though this has by no means been established) that the conditions from which the other ten cases suffered had any relation to the filariaemia.

Most of the infected men had left their homes over a year ago, and in some cases over 2 years before; filariaemia must therefore have persisted for long periods, and must be regarded as capable of persisting still further.

Pending fuller investigations it is suggested that natives in known infested areas should not be recruited for service abroad unless the blood is found to be filaria-free.

THE DETERMINATION OF HAEMATOCRIT VALUES IN WOUND SHOCK

A ROUTINE PROCEDURE

BY

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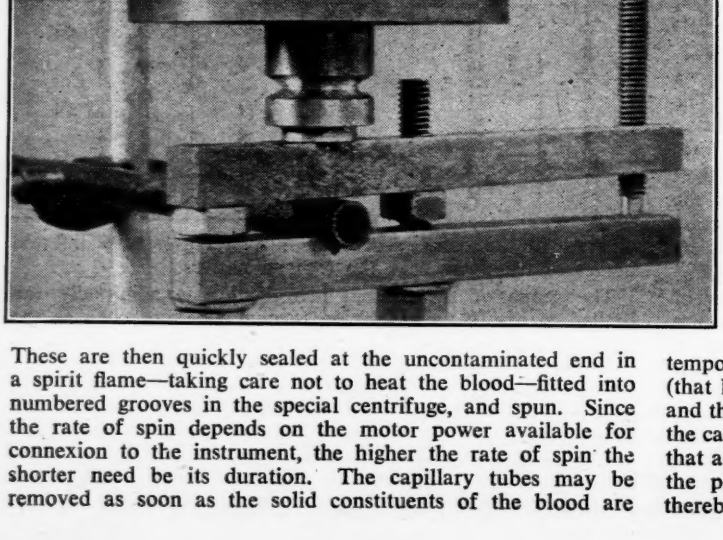
In the course of certain experimental work it became necessary to devise means of determining the haematocrit value of many blood specimens simultaneously and with the utmost speed. Our requirements were met very simply by (1) the use of thin-walled capillary tubes; (2) millimetre paper; (3) a specially constructed fixed-angle microcentrifuge slotted to hold 25 capillary blood specimens. This apparatus allowed the haematocrit value of the blood from several cases at one time to be determined with accuracy and with such unusual expedition that we feel justified in describing our technique in detail.

Method

The capillary tubing is drawn out and cut into approximate lengths of 60 mm.; from each specimen heparinized blood (small droplet of blood on finger dusted with heparin before pricking) is filled into 8 to 10 such tubes by capillary attraction.



These are then quickly sealed at the uncontaminated end in a spirit flame—taking care not to heat the blood—fitted into numbered grooves in the special centrifuge, and spun. Since the rate of spin depends on the motor power available for connexion to the instrument, the higher the rate of spin the shorter need be its duration. The capillary tubes may be removed as soon as the solid constituents of the blood are spun out, and the reading is made by checking the fluid–solid level against millimetre paper. The resultant average of all samples of each blood specimen is expressed, as usual, as the percentage of corpuscles in a total blood volume.

The body of the centrifuge (see Fig.) is a truncated cone with a top diameter of 3 in. and a bottom diameter of 6 in., the external surface being at an angle of 45 degrees with the base. The sets of capillary tubes slide into grooves cut from top to bottom of the external surface parallel to its inclination, and are retained by three narrow bands running round the outside of the cone at intervals of about 20 mm. between base and top. Underneath, and turned as part of the cone, is a horizontal pulley-drive. The entire head is mounted on a vertical 1/2-in. steel rotating shaft. The shaft is fixed on a universal clamp so that the apparatus can be secured firmly on a table, metal framework, rod, or other platform sufficiently robust. The centrifuge head can be constructed of light metal or some lighter material, so that no great driving power will be needed. A small electric motor is adequate, or the power provided by the fan belt of a motor-car or similar engine. In practice it has been found quite satisfactory to drive the centrifuge by pressing the lower rim against the upper outer side of the tyre of a jacked-up rear wheel of a motor-car. It might be more convenient to interpose a small driving wheel and flexible shaft of speedometer type. In cases where the r.p.m. are low a step-up pulley could be easily interposed between motor and centrifuge to raise the gear ratio so as to yield about 3,000 to 4,000 revolutions a minute. Where such fittings are lacking or the available centrifuge-mounting is not firm enough to allow such a high rate of spin, satisfactory results can be obtained with as few as 1,000 revolutions a minute; but in this event the tubes must be spun for a longer time. The lowest optimal time for every individual connexion can be found once for all by the initial inspection at test intervals of a set of control tubes. When the solid–fluid level ceases to alter, the end-point has been reached. The spinning time so determined will be approximately correct for all subsequent readings under the same conditions. No harm is done by considerable prolongation of the spinning time, where it may be convenient so to do. The usual precautions taken with other types of centrifuge in regard to their slowing gradually to rest without disturbing the content of the tubes should also be observed here. Where a drive is provided by a car engine the r.p.m. should be reduced by gradual deceleration.

This simple centrifuge has proved so useful in the laboratory that its use may be suggested as an aid to clinical differential diagnosis in surgical emergencies.

Comment

Modern investigations in the mechanism of production of shock in the injured have shown that in primary shock the collapse is due to vasomotor failure; the composition of the circulating blood is unaltered and transfusion of blood or plasma is not indicated: it may even overload an already impaired circulatory system. The haematocrit readings will be within the normal range of values. In secondary shock the haematocrit readings will be abnormally high owing to loss of fluid elements of the blood; the percentage of solids in any given blood volume will be in considerable excess of normal. If secondary shock is still developing and not yet extreme the patient is still conscious, but the underlying progressive blood change is already revealed by a moderately raised haematocrit reading.

Haemoconcentration has been found to be the earliest sign of oncoming shock in wounded soldiers (Moon, 1942).

Transfusion of plasma, though an appropriate treatment for all degrees of secondary shock, can confer only temporary benefit if the excessive capillary permeability persists (that has allowed the migration of fluid constituents of blood), and the transfused plasma also escapes. It has been found, as in the case of burn shock reported among others by Rhoads (1941), that adrenal cortex hormones (cortin) are capable of preventing the persistent fluid loss by reducing capillary permeability, thereby saving much plasma. Dehydration shock experiments

in the rat (Reiss, MacLeod, and Golla, 1943) have shown that corticotrophic hormone, by mobilizing an endogenous supply of adrenal cortical hormones, can similarly influence the capillary permeability and effectively prevent the loss of blood fluid.

The haematocrit alone can give a differential diagnosis of the state and fate of the fluid components of the blood.

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Medical Memoranda

An Unusual Amoebic Liver Abscess

It is common knowledge that the metastatic liver infection produced by the *Entamoeba histolytica* proceeds in many cases from hepatitis to suppuration. The resultant abscess must always be thought of as the "cold" variety and be treated with as much circumspection as are those due to the *Mycobacterium tuberculosum*. This lesion progresses, and seeks to establish an outlet whose track may lead into any structure which is in immediate anatomical relation to the liver. Adhesions will form in practically every case, and so prevent general contamination of a serous cavity.

Many years of observation have shown that the amoebic liver abscess is usually solitary and large, and is situated in the right lobe. Again, in the case of the female, liver abscess is relatively uncommon. Rogers observed nearly 400 cases of liver abscess in Calcutta, 97% being in males, and quotes Ludlow's series of 240 cases in Korea, of which 90% were in males; while Manson-Bahr states that European women in the Tropics rarely develop the condition. The undermentioned case presented several uncommon features, in addition to the fact that the abscess occurred in the left lobe and in a female.

CASE NOTES

On Dec. 28, 1939, I was asked to see a parous Hindu, aged about 30, who complained of weakness, fever, general abdominal discomfort, and anorexia. The symptoms came on gradually, without rigors, and were associated with some loss of weight of only twelve days' duration. The fever was at first remittent, and quinine had been given for thirteen days, but without result.

Examination showed a fairly well nourished woman, and the following signs were recorded: coated tongue; no abnormal glands; chest, heart, and C.N.S. normal. The abdomen was held in a tense manner, but a mass filled its upper half, and it was dull to percussion though not very tender. Rectal examination and urine analysis were normal. Blood serum for agglutination contained *B. typhosus* 1: 1280, but the Vi agglutination test gave a negative reading.

Stools showed no abnormality on gross examination. On the 15th day of fever the temperature became intermittent. Re-examination revealed that the liver edge was at the level of the navel, and that another mass in the upper abdomen came from behind the costal margin and extended two inches below the navel. There was a notch at the junction of this mass with the liver. It felt like an enlarged spleen, but subsequent signs showed it to be an enormous left lobe of the liver. No shifting dullness was found, nor was the mass very tender. On the 15th day the blood showed 15,000 white cells per c.mm., with 84% polymorphs. Stools were repeatedly negative for ova, cysts, and amoebae. A course of 10½ gr. of emetine hydrochloride injections was given over a period of 15 days and the temperature became normal, but only for the first three days. On the 19th day signs appeared at the right base —viz., dullness, absent breath sounds, and inspiratory rales.

Shoulder pain and vomiting never occurred. The patient now began to lose weight at an alarming rate and the temperature was swinging from normal to 103° F. She could with difficulty be encouraged to take fluids and glucose. There was no sweating, and the urine showed only a trace of albumin. On the 20th day the white cells were 16,600 per c.mm., and on the 21st day rose to 19,600.

Under twilight sleep and local infiltration with novocain the right lobe of the liver was searched diligently, but with no result. Then the needle was directed into the greatly enlarged left lobe and 58 oz. of light yellowish-green fluid resembling thin pea-soup was removed by means of a Potain aspirator. This immediately relieved the patient, and the temperature kept at the normal level for 7 days. The emetine course was then stopped and the same signs and symptoms recurred. On the 32nd day of the disease aspiration was repeated after the white cell count had risen to 24,400. On the 37th day a further 16 oz. of thicker and darker material was aspirated. The patient continued to lose weight and strength, and for the first time the skin and sclera became icteric and there was choluria, associated with an irregular curve on the temperature chart.

As repeated aspirations failed to achieve a cure, and as the abscess in the left lobe could be seen standing out and fluctuation could be obtained there, open drainage was done.

Operation.—Under local anaesthesia the left rectus was split, and on a nick being made in the oedematous peritoneum odourless pus, thick and with coagula and sloughs, shot forth. Using Bailey's method of a tube within a tube and eusol irrigation, together with extreme care in the changing of dressings, secondary infection was avoided. The patient was discharged healed on the 30th day after operation. She was given stovarsol 4 gr. b.d. in a 10-day course and tab. ferrous sulph. 3 gr. t.d.s. for a month after operation, and is now fit for a normal day's activity.

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The Third Case of Fatal Air Embolism reported after Vaginal Insufflation

Recently details of a death due to air embolism following a picrotol insufflation of the vagina was reported by Dr. Latham Brown. The fatality occurred in a normal primigravida one week before she was due. The clinical picture and post-mortem findings of our case are almost identical to his. They will be stated to emphasize that air insufflation of the vagina in a pregnant woman near term is a very dangerous procedure.

CASE HISTORY

On June 4, 1943, a 1-para aged 21 was admitted to Ashridge Hospital. Her expected date of confinement was June 8. She was completely normal in every respect except for a malodorous vaginal discharge due to the *Trichomonas vaginalis*. On June 6, two days before she was due, it was decided to treat the discharge with a picrotol insufflation. Approximately ten pumps of the insufflator were used—i.e., about 600 c.cm. of air. The patient did not complain of any undue discomfort. When the insufflator was withdrawn she immediately went into what appeared to be a fit. Her eyes rolled up, she became very cyanosed, her pulse became imperceptible, and despite all attempts to resuscitate her she died within about three minutes.

At necropsy the woman appeared well nourished but cyanosed. Air was found in the heart, making the blood in the right side appear frothy. The neck veins had the appearance of overfilled spirit-levels, air showing through the walls. Air was likewise found in the sinuses of the brain. It was also abundantly present in the pampiniform plexus. The uterus contained a normal foetus at term. The placenta was situated high up on the anterior surface. The membranes were not ruptured. Air could be seen through the veins on the outside of the uterus. The cervix was large, inflamed, eroded, and patulous. Although we looked very carefully, we could find no evidence of bleeding, separation of the membranes or placenta from the uterine wall. However, a considerable amount of air was found on the maternal surface of the placenta. In the last case reported the membranes and a portion of the placenta were found stripped from the uterine wall. In that instance it was obvious that the air entered the circulation from the vagina by passing through the cervix, stripping up the membranes, and thus getting into the maternal sinuses of the placenta. The same route must be presumed in our case.

DISCUSSION

We are in entire agreement with the views stated arising out of Dr. Latham Brown's case, and think they should be repeated —namely, that it would be a pity if such an efficient form of treatment as picrotol insufflation should fall into disrepute on account of three fatalities in many thousands of normal cases, when precautions might guarantee its harmlessness. We also agree that an efficient cervical barrier must be demonstrated before insufflation is used, or some other form of treatment should be adopted.

It would seem that as the mode of entry of the air into the circulation is through the placental site, insufflation is only dangerous in a pregnant woman. Let us consider the question, Is insufflation dangerous throughout the whole of pregnancy or only in the later months? These two cases show that it is definitely dangerous in late pregnancy. In the other case, reported in Canada in 1936, death occurred in a multigravida only 4 months pregnant. Since the placenta is fully developed in form by about three months it would seem that there are present in miniature all the factors which are capable of allowing air to enter the circulation from then onwards. In all probability the danger of air embolism increases as the placenta enlarges and the os becomes more patulous. In other words, the later in pregnancy the more dangerous is the treatment. The treatment is also probably more dangerous in multigravid women, as their cervical barrier is less efficient.

Conclusion.—In early pregnancy it would be prudent to hesitate before insufflating a patient; and in late pregnancy dogmatism is justified—it must not be done.

(In fairness to the makers of picrotol, in their literature they state that insufflation should not be done in the last four months of pregnancy.)

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Reviews

THE LYMPHATIC SYSTEM

The Lymphatic System: Its Part in Regulating Composition and Volume of Tissue Fluid. By Cecil K. Drinker. Lane Medical Lectures. Stanford University Publications: University Series. University Sciences, Volume IV, No. 2. (Pp. 101; illustrated. 14s.) California: Stanford University Press; London: Oxford University Press. 1942.

This series of five lectures makes entertaining reading, and maintains the high standards of the Lane Lectures. It is entertaining because the treatment of the subject is original and the author's asides both sagacious and witty, and it maintains the high standards demanded by tradition by reason of the originality of the approach. Space will not permit of long quotations, but the following might well be put up in large letters in many a laboratory. "It is a misfortune that those who apply the idea that living creatures are but complicated expressions of the natural laws which they slowly learn from studies of inanimate objects, measure the reactions of living things with a rod whose every mark is stamped with the authority that can be established for non-living material."

The keynote of the lectures is that the lymphatic system can best be understood by consideration of its essential connexion with the circulatory system, with which it is integrated into a means for maintaining a constant internal environment for the tissues. The historical development of this point of view is attractively treated, as is also the author's search for a biological explanation of the evolution of lymphatics, a subject that still remains somewhat obscure.

The interdependence of blood, tissue fluid, and lymph is elegantly illustrated by the author's own recent work on the lymph flow from the heart and lungs. This work is not only in itself a triumph of technical skill but an excellent illustration of the general principles involved, and, moreover, is likely to be of importance in the pathology of the organs concerned. The last chapter deals with the relation of the lympathtic system to practical problems of medicine and surgery, and shows how a knowledge of the relations between blood, tissue fluid, and lymph throws light on some long-established practices.

INSTRUCTION FOR NURSES

A General Textbook of Nursing: A Comprehensive Guide. By Evelyn C. Pearce, 8th Edition. (Pp. 915; illustrated. 15s.) London: Faber and Faber. 1943.

Teaching in Schools of Nursing. By Alice M. Jackson, M.A., and Katharine F. Armstrong, D.N., S.R.N. With an Introduction by Cyril L. Burt, M.A., D.Sc. (Pp. 244. 7s. 6d.) London: Faber and Faber. 1943.

Miss Evelyn Pearce has revised her well-known volume *A General Textbook of Nursing* for an eighth edition, a surprising record when it is recalled that it first appeared as recently as 1937. Changes have been made in accordance with advances in treatment, so that there is now a note about penicillin and an interesting new "routine" for the dressing of surgical cases. What seems to be missing is not so much the latest form of treatment as a more up-to-date outlook on the whole future of nursing. The term "social medicine" does not appear in the index, and the part that nurses must play in the social and preventive medicine of the future is not stressed. The word "almoner" does not appear in the index, though mentioned in the text in a brief manner in relation to the discharge of patients.

A reprint of *Teaching in Schools of Nursing* by Miss Alice M. Jackson and Miss Katharine Armstrong has now been issued and appears to be identical with the first edition published in 1934. Here again the new orientation in the world of medicine is lacking, although in an appendix on the "block" system of training the curriculum includes two lectures by the hospital almoner on social services.

CONTROL OF INSECT PESTS

Biological Control of Insects. By Hugh Nicol. (Pp. 174. 9d.) Pelican Books. Middlesex: Penguin Books. 1943.

"Biological control," says Dr. Nicol, "has been practised by every person who has kept cats on account of the mice. . . ." With this deceptively simple example he encourages the layman to study the complexities of modern achievements in biological control of pests. Nature is a battleground in which innumerable forms of life compete to live and reproduce. By agricultural practice man has swayed the ecological balance, but in the course of centuries it has become readjusted in Europe and Asia. The matter is otherwise, however, in recently developed areas of the world, farmed on the largest scale. The constant movements of commerce have brought to these lands insect pests without parasites or competitors to hamper them. The results have been destruction spreading like a forest fire. Chemical and mechanical control measures have achieved little success in these cases, and the apparently obvious procedure of collecting and destroying the pest was entirely useless. Only by the use of scientific observation and experiment were the missing biological checks discovered and brought, perhaps, thousands of miles to the new country. The remarkable success of these measures in many countries was well deserved by the perseverance of the entomologists concerned. Dr. Nicol describes many such campaigns, each presenting different features of interest. Unusual scientific terms are explained, but there is no attempt to "write down" to the reader, who is, perhaps, more likely to be a scientist or medical man than an average citizen. There are some good illustrations.

Notes on Books

An abridgment of Mr. J. G. CROWTHER'S book *Soviet Science*, published in 1936, has now appeared as a ninepenny "Pelican." The original material was collected during seven visits to the U.S.S.R. between 1929 and 1935, when the foundations of contemporary Soviet scientific and technical strength were laid under the First Five-Years Plan. A large public will welcome this handy and inexpensive edition.

Preparations and Appliances

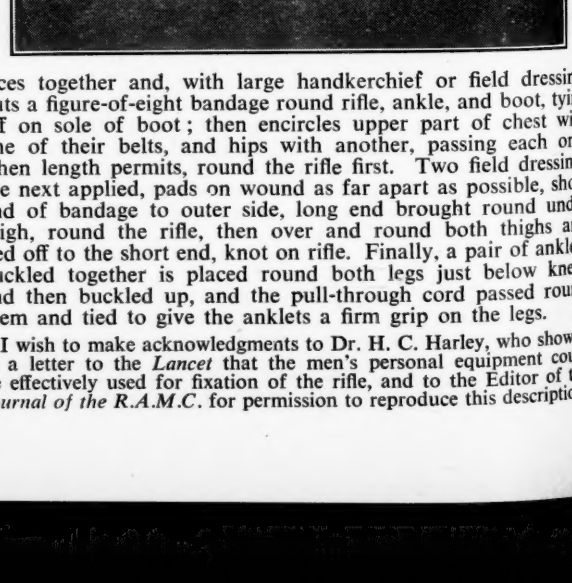
EMERGENCY SPLINT FOR FRACTURED FEMUR

Major P. L. W. WILLIAMS, D.S.O., F.R.C.S.Ed., Battalion Medical Officer, 4th Cornwall (Wadebridge) Battalion, Home Guard, writes:

An emergency splint for fractured femur (and adjustable for leg bones) has been made up entirely with personal equipment, which can be applied by two untrained men in the absence of skilled assistance. The photograph shows it applied to a member of the Home Guard.

Directions

Place the casualty in extended position, limbs together. One man grasps heel and foot of injured limb, makes steady extension, and maintains it until bandaging is completed. The other places rifle along outer side, butt well up to armpit, first removing bolt, ensuring that neither rifle nor magazine contains any cartridge, and extracting pull-through; then ties boot-



laces together and, with large handkerchief or field dressing, puts a figure-of-eight bandage round rifle, ankle, and boot, tying off on sole of boot; then encircles upper part of chest with one of their belts, and hips with another, passing each one, when length permits, round the rifle first. Two field dressings are next applied, pads on wound as far apart as possible, short end of bandage to outer side, long end brought round under thigh, round the rifle, then over and round both thighs and tied off to the short end, knot on rifle. Finally, a pair of anklets buckled together is placed round both legs just below knees and then buckled up, and the pull-through cord passed round them and tied to give the anklets a firm grip on the legs.

I wish to make acknowledgments to Dr. H. C. Harley, who showed in a letter to the *Lancet* that the men's personal equipment could be effectively used for fixation of the rifle, and to the Editor of the *Journal of the R.A.M.C.* for permission to reproduce this description.

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PSYCHIATRY AT THE CROSS-ROADS

It is not too much to say that the future of psychological medicine—or psychiatry, as it is now almost popularly called—is of fundamental importance for medicine as a whole; not only because of the frequency of psychological forms and causes of illness and of psychiatric problems in the community generally, and in special domains of human life and experience, but because of the pervasiveness of psychological factors throughout the art of medicine. The last war opened the eyes of many to psychological problems in medical practice previously hardly suspected. The present war has made that experience wider and deeper. It is curious how at one and the same time the most conservative and the most progressive teaching in medicine is reinforced by psychiatric experience. In clinical psychiatry diagnosis still rests firmly on a thorough clinical history and not primarily on examination by medical or laboratory methods—a principle that still applies equally to general medicine, where, however, it is more easily obscured and forgotten. The social aspects of medicine, to which everyone now pays at least lip service, are nowhere more evident than in psychiatry, the most socially oriented of all the medical disciplines. The new message of "positive health" is already recognized in the efforts of psychiatrists in the fighting Services and their colleagues, the "academic" psychologists, to select the fittest for the multifarious but specialized tasks of war.

In these times of change and progress psychiatrists find themselves in a position where as pioneers they must expect to find themselves—opposed by conservative and even sometimes by reactionary forces of the what-was-good-enough - for - the - Services - in - 1900 - is - good - enough - today type: but they are in distinguished company. In one direction, however, the war has given point to questionings which had long existed and for which remedies had been sought in vain. We refer to the training of psychiatrists. To put the matter plainly, the qualifications of some psychiatrists for the tasks assigned to them are unsatisfactory, and they could have been far better. It is not solely or even mainly the fault of the psychiatrists. When the University of London raised the standard of its D.P.M., what happened? The number of candidates quickly dwindled, because most candidates were content to take the D.P.M. of other examining bodies whose standards were less exacting. When it was suggested to some of these that they should stiffen their requirements they found objections, and any change made was hardly perceptible.

Apart from the unsatisfactory examination position, many psychiatrists suffered and still suffer from the fact that mental hospitals, where most of them live and work, provide a limited though valuable and indispensable type of experience, but one which fits them in only a one-sided fashion for the great bulk of extramural psychiatric work. Attendance once or twice a week at an out-patient department is useful but does not restore the educational balance. On the other hand there are many psychiatrists who have never held an appointment in a mental hospital—it is as if someone would seek to be a specialist in surgery without having held a resident surgical post. This deficiency in the experience of the most serious and profound mental disorders is not by any means completely compensated by residence and work in a psychiatric clinic or hospital for "early" or "recoverable" cases exclusively, essential as such experience undoubtedly is for the thoroughly grounded man. Psychiatrists have themselves been to blame in allowing such accidental and unfortunate differences of experience to appear fundamental, so that a school of "organicists" (*sic*), who seem almost innocent of psychological knowledge or insight, became opposed to schools whose principal or only study was psychotherapy; while psychiatrists trained for the most part within mental hospitals have regarded with professional suspicion those trained for the most part outside—and vice versa. The cause of these schisms, which to visitors from abroad seem sometimes as puerile as they are avoidable, lies largely in the nature of our psychiatric institutions—using the word in the sense of established things, and including examinations as well as hospital organization—and in particular in the fact that almost alone of Western countries Britain has failed to develop in-patient accommodation in special units inside general teaching hospitals. The advantages of such units, commonly known abroad as psychiatric clinics, are many, but in general they help to confer not only on future psychiatrists but on medical students a comprehensive outlook on mental disorder, and a psychological as well as a physical orientation towards the problems of everyday practice.

The poverty of training in psychological medicine in many of our schools has been in some ways almost scandalous. In few has the student had a proper introduction to the subject. There have been in places a few lectures, not always valuable in spite of their comparative rarity, some demonstrations of the more advanced type of mental disorder, and little else. A few schools have done much better than this, but their resources have been scanty, with few or no teaching beds for in-patients and crowded and inadequately staffed out-patient departments. The teachers of the subject, it is true, got little encouragement from the programmes of the curriculum. The last Curriculum Conference, of which much had been hoped, turned out to be very timid and tepid in its recommendations. All this has put psychiatry at a disadvantage in the medical schools. Those students who chose a psychiatric career found that the main avenue to it led them away from medicine as a whole, into relative isolation from their colleagues in other branches. They found also that the generally low standard for the D.P.M. made it possible for the most slenderly equipped person to set up as a "specialist" with an undeniable academic qualification.

To remedy this state of affairs, by beginning at the most remediable end—the education of a new generation of psychiatrists—a committee presided over by Sir Walter Langdon-Brown has drawn up a scheme for an approved D.P.M.[1] In its report published recently the committee recognizes several fundamental principles. It considers that the practice of psychiatry is not one in which students of one year of graduate age should blossom as fully equipped specialists as they can do under the present regulations. Four years' postgraduate training is recommended as the minimum before the D.P.M. can be taken. It also provides that the aspirant will not rush straight from medical school into specialist training, but must obtain experience of general medicine first of all for at least a year in hospital or in general practice. Thereby the report recognizes in a practical way that psychiatry and general medicine are "very much mixed up together," and will be more so in the future. The subject-matter of psychiatry is not nowadays only the relatively few who are alienated from

[1] Report of the Langdon-Brown Committee on Postgraduate Training in Psychological Medicine. Published June, 1943.

ordinary life. The motto of the psychiatrist of to-day—and especially in the period of training—might well be *Humani nihil a me alienum puto.*

The Langdon-Brown Committee recognizes that no one can practise psychiatry with full effectiveness, sympathy, and understanding unless he has spent a year or two in close contact with mental disorders in their most profound forms. The creation of special units—psychiatric clinics—in general hospitals, necessary as this is, will not remove the need for residence in a mental hospital as part of the specialist's or consultant's training. The ideal training will include both. In the meantime the Committee makes the best of the existing facilities by recommending a year's attendance at psychiatric out-patients in a teaching hospital.

Disagreement may be found with the details of such a scheme, but the general principles implied in it—of length and diversity of training, and of contact with general medicine—are likely to command wide acceptance. The report of the Committee should be of great help in all future deliberations on the same subject, which is one of urgency, not only for psychiatry but for the application of sound and comprehensive medical principles to the development of the post-war world. It is not a symptom of a mania for planning: it is a remodelling which works with the organizations that exist, pending the construction of a better *milieu* for the training of practitioners in psychological medicine. The report is fair, constructive, broad-minded, and brief.

MOSQUITO BREEDING IN STATIC WATER TANKS

The extent to which mosquitoes in this country give rise to serious annoyance is not so widely appreciated as it ought to be. It is true that no question of transmission of serious disease, as in the Tropics, ordinarily arises; but the nuisance effect is widespread, and in the summer months countless persons suffer minor tortures from the bites of mosquitoes which might be largely avoided if sufficient attention were given to control of these insects. The introduction of static water tanks in our towns has recently brought this question rather prominently into the foreground, forming a sanitary problem which for some time has been engaging the attention of local authorities—namely, how far are these to be regarded as possible sources of mosquitoes and what action in this connexion ought to be taken.

An account lately given by its Director, Mr. John F. Marshall, on the activities of the British Mosquito Control Institute, Hayling Island, in the City of Portsmouth,[1] gives some very pertinent information on these points. To oil all tanks, without more information as to how far they are actually being utilized by mosquitoes as breeding places, might be very wasteful as well as objectionable where tanks are waterproof-lined with bitumen, on which oil would have a prejudicial effect. Again the English species most likely to breed in such tanks, *Culex pipiens*, rarely if ever bites human beings, though on the other hand static water contaminated with sewage or other nitrogenous matter would be liable to breed the fierce and poisonous mosquito *Theobaldia annulata*; and static water stored in dark underground situations—for example, in "basement tanks"—may be expected to breed the almost equally fierce *Culex molestus.* In the present case the Medical Officer of Health of Portsmouth, Dr. A. B. Williamson, with the co-operation of the Hayling Institute, arranged to carry out a systematic inspection of all tanks in the city area. The tanks were of seven types—namely, oblong and circular steel tanks, brick-and-concrete and concrete tanks, clay-lined tanks, basement tanks, and excavated sumps. The great majority were filled with fresh water, but sea water was used in a certain proportion of cases. As the result of some seven months' close inspection only two species of mosquito—*Culex pipiens* and *Anopheles maculipennis*—were found breeding, and the latter only in tanks containing algae and during the late autumn. No positive find was made before May 7 or after Oct. 6. As Mr. Marshall points out, this result was not due to the absence of other species in the area, since the mosquito *Theobaldia annulata* habitually and heavily infested garden tanks in which "manure water" was kept for plant-watering purposes, while *Anopheles claviger* and other species of mosquito were present, including certain "coastal species" of *Aëdes*, often a serious pest in seaside localities and very troublesome in the environs of Portsmouth until their control was taken in hand. Why these mosquitoes did not avail themselves of the breeding facilities offered by the tanks was not very clear, but one must suppose that their own special and particular habits did not "fit in" with the conditions which the tanks provided. One reason was probably the size of the tanks, since the smaller the tank the more likely was it to contain larvae. No difficulty was found in treating tanks where larvae were detected by the clearing of algal growth and oiling where this was appropriate. In only one instance did reinfection take place.

The practical importance of this careful piece of research needs no emphasis. The only cautionary comment it is perhaps advisable to make is that conditions in different localities no doubt vary a good deal, and the results found in one locality might not be exactly reproducible in another, the main deduction to be drawn being the necessity for a proper supervision wherever such tanks exist. One would desire to compliment the public health authorities at Portsmouth on their action in the face of unknown potentialities in arranging for such a survey and Mr. Marshall on this example of the work of the Hayling Institute, which for many years has been carrying out research of great scientific interest and public utility on British mosquitoes and their control. Besides describing the Portsmouth investigation, the pamphlet published by the Institute gives much useful information on the general question of breeding in static water and would well repay perusal by those who may be interested in this subject.

[1] *The Control of Tank-breeding Mosquitoes in the City of Portsmouth.* British Mosquito Control Institute, Hayling Island, Hants.

VOLUNTARY HOSPITALS LOOK FORWARD

Special interest attaches to the speech of the chairman (Sir Bernard Docker) at the annual meeting of the British Hospitals Association because it indicates the general lines upon which the association's discussions with the Ministry of Health have proceeded. He said that certain principles were fundamental to the fulfilment of the Government's declared promise to retain the voluntary hospitals—namely, individual hospitals must keep their freedom and flexibility in the administration of their own affairs and the appointment of their staffs, and the patient must be free to choose not only his doctor but also his hospital. The B.H.A. had suggested a central hospitals board, the members of which would be appointed by the Minister on the nomination of the parties concerned—the voluntary hospitals, local authorities, and doctors. This board would advise him on the general plan and policy, on local schemes, and on the allocation of certain money, including that provided centrally from social security funds. It should be free to make suggestions and recommendations to the Minister and

publish reports. Sir Bernard Docker here defined the extent of the responsibility of local authorities by saying that they should see that the facilities available in their areas were adequate; he did not say that they should provide these facilities. Local advisory hospital boards, he continued, should be set up, constituted in the same way as the central board except that a university in the area should be represented on it. These local boards would advise the health authorities on the provision of hospital services in the area and the part to be played by each hospital. They should be autonomous, independent of local politics, with the right of appeal in case of dispute to the central hospitals board. On the question of finance, he said that if voluntary hospitals were to be preserved then they must still be able to receive voluntary contributions and the public to make donations—this in addition to a contribution from the Government out of social security funds and payment from local authorities for services rendered and from patients for maintenance. Contributory schemes would continue; it was at present being considered how they could best be maintained and utilized in a comprehensive health service. The Minister of Health, who was the guest of honour, after acknowledging the help the B.H.A. had given him, said the discussions had dissipated the idea (which was quite unfounded) that some kind of onslaught was being planned against the voluntary system. That was a complete misconception. The Government's policy was and always had been to make the fullest use of voluntary resources in any post-war hospital service.

THE SHORTAGE OF MIDWIVES

Though there was an increase in the number of women enrolled as midwives during the past year, and a further steady rise—of nearly 1,000—in the number of pupils received in the training schools, the shortage of women practising the profession still causes anxiety, according to the report of the Central Midwives Board for England and Wales. It is hoped that the recommendations of the Rushcliffe Committee and the Advisory Council for the Recruitment and Distribution of Nurses and Midwives will secure that the necessary proportion of pupil-midwives continue in practice after qualification. A special survey of Part II training schools has been made on behalf of the Board, especially with a view to looking into the conditions under which pupil-midwives live and work, in the endeavour to assess the extent to which these factors may influence the pupils in their choice or rejection of the profession after qualifying. Some useful information has been elicited and is now being considered. The roll of midwives on March 31 last contained 67,112 names, being 1,480 more than at the end of March, 1942. The number who notified their intention to practise during 1942 was 15,868. Of this number only five were untrained "bona-fide midwives"—that is, enrolled by virtue of having been in bona-fide practice before the passing of the Act of 1902. Of the midwives practising in 1942, 56% had been enrolled during the thirteen years since 1930. Out of 16,000 midwives enrolled in the six years 1935-40 only about 27% notified their intention to practise in 1942. It is estimated that the proportion of enrolled midwives who are or have been married must be nearly 48%, and very few married midwives work in institutions. The need for adequate housing for the practising midwife, with special reference to recommendations of the Rushcliffe Committee, was brought to the fore at a conference held in London on Aug. 30 by the College of Midwives. Several speakers, including medical men with first-hand knowledge, pointed out the handicaps under which the midwife lives and does her work and the discouragement to recruiting that arises therefrom.

CHEMOTHERAPY IN SWITZERLAND

The *Schweizerische Medizinische Wochenschrift* has recently published a magnificent special number (No. 19/20, 1943) on chemotherapy, which is dedicated to the International Committee of the Red Cross. Its 140 large pages are devoted to articles by Swiss authorities on almost every aspect of sulphonamide therapy, including both the treatment of various types of disease and such more general matters as chemistry, pharmacology, nomenclature, mode of action, the assessment of therapeutic success, and the conduct of treatment in children and the aged. It is noteworthy that a greater range of different sulphonamide compounds appears to be on the market in Switzerland: a table of formulae and correct chemical descriptions with corresponding trade names includes a total of 22 different substances. In the purely clinical articles sulphathiazole appears to be a strong favourite for most purposes. It is encouraging to find that, according to G. Bickel, the recovery rate in endocarditis lenta has risen to 6%: he emphasizes the need for a prolonged course of heavy dosage, and gives a total of from 800 to 1,200 g. of sulphathiazole. Before embarking on so serious an undertaking as this it might be well to determine the sulphonamide sensitivity of the streptococcus concerned; the absence of instructions for performing such tests is one of the few omissions from among possible subjects in such a symposium. M. Grob reports a reduction in the mortality of perforative appendicitis in children from 16 to 1.6% after adopting the method of scattering a mixture of sulphathiazole and boric acid powder in the peritoneal cavity after appendicectomy. There is a very valuable paper by N. G. Markoff on blood changes produced in the course of treatment, with particular reference to marrow changes and effects on haemopoiesis, but including descriptions of sulph- and met-haemoglobinaemia and other effects on the blood. On the academic side a noticeable feature is some degree of scepticism about what may be called the *p*-aminobenzoic acid theory. While fully acknowledging the validity of Fildes and Woods's fundamental discovery, more than one author questions whether this is the whole explanation of the sulphonamide effect on bacteria. As a detailed reflection of practice and belief in a most enlightened and at present regrettably inaccessible country this number is of exceptional interest.

DIET OF WORMS

The manner in which tapeworms obtain their nutrients has long been a matter of speculation rather than of observation. It is commonly believed that they depend for their nourishment on the digested or semi-digested intestinal contents in which they are bathed, and which they absorb by diffusion through the body surface. This has long been assumed, but never verified. Very little work has been done on the effect of variations in the diet of the host on the persistence, growth, and reproduction of tapeworms, most of our knowledge on their nutrition and physiology having been obtained from worms kept in various nutrient media *in vitro* or from chemical analyses. Several facts suggest that adult tapeworms may absorb nutrients directly from the mucous membranes of the gut of the host rather than from the food products in its lumen. Thus some

adult tapeworms can live outside the lumen of the intestine and have their head and neck deeply embedded in the intestinal mucosa; others live in the liver, gall-bladder, and bile ducts. Immature tapeworms can also develop in such tissues as the liver and muscles, under serous membranes, and even in the brain. Still another reason for believing that tapeworms may not depend entirely on the nutrients in the intestinal lumen is the strong host specificity of most species, which suggests that they depend, in part at any rate, on the host's tissues for food.

Recently experiments by Chandler[1] with *Hymenolepis diminuta* in albino rats prove that this tapeworm is wholly independent of the protein in its host's diet, for complete elimination of protein from the latter had no evident effect on the establishment, growth, or reproduction of the tapeworm, though it made the rats lose a lot of weight. Chandler has also produced evidence that the tapeworm is independent of vitamins A, D, E, and B_1 in the diet. It seems plain, therefore, that the worms absorb these vitamins and proteins—or at all events nitrogenous substances—directly from the mucous membrane of the host's intestine. On the other hand it appeared that the tapeworms got the bulk of their carbohydrate and vitamin B_2 complex from the contents of the intestinal lumen. Perhaps some part of the vitamin B complex is necessary for the utilization of carbohydrate by the worms.

The popular idea that tapeworms are injurious to their hosts primarily because they rob the host of unabsorbed food may need revision. The general systemic effects commonly produced by tapeworms—e.g., nervous symptoms, gastro-intestinal disorders, loss of weight, and weakness—may be due not to toxins but to the absorption by the worms of vitamins, proteins, and other essential factors from the gut wall. Symptoms of frank vitamin deficiency have not so far been reported in patients infested with tapeworms, though Chandler believes that tapeworm toxicity may be in part an induced vitamin-B deficiency; but other worms can cause avitaminosis and anaemia.[2] In this connexion the precipitation of a macrocytic anaemia resembling pernicious anaemia by infestation with the tapeworm *Diphyllobothrium latum* (*Dibothriocephalus latus*) is of some interest. It is generally agreed that in pernicious anaemia an extrinsic factor, contained in meat and yeast, is converted into anti-pernicious-anaemia factor by the action of an intrinsic factor secreted by the stomach. It is possible that one of these factors is absorbed by *Diphyllobothrium* in large enough quantity to cause anaemia in the human host.

HEALTH AND TONSILLECTOMY

A feature of medical practice in recent years has been the popularity of tonsillectomy, especially among patients of well-to-do families; over half of the children in boarding schools have had their tonsils removed. Paton,[3] in his analysis of the data relating to 424 girls at boarding schools, of whom 42.9% had a history of tonsillectomy, suggested that this operation was carried out too readily, and that the tonsillectomized group had no advantage over the group who were not operated on. Since this inquiry a mass of material has been collected by the School Epidemics Committee of the Medical Research Council.[4] The data were based on the records of an average number per term of over 10,000 boys and 3,500 girls during 1930-4. Of the children studied 56% of the boys and 50% of the girls had had their tonsils removed. The sickness experience of the tonsillectomized group was no better than that of the children in whom there had been no operation; in fact there was some slight indication that the incidence of rheumatism, otitis media, and mastoid disease was higher among the former. A comparison of the sickness incidence before and after the operation was made for a selected group of 364 boys who had their tonsils removed on the advice of the school medical officer. Before operation this group had an attack rate for nasopharyngeal infections which was 8.7% greater than the expected rate obtained from age distribution and rates of all boarding schools combined. After tonsillectomy the attack rate was 0.5% less than the expected rate. The committee concluded that in properly selected cases an operation was of real value, but in general it was performed for no particular reason and with no particular result.

A further contribution to the subject has been made by Paton,[5] which extends his previous study to the decade 1930-9. The data are based on the records of 909 girls, of whom 57% had had a tonsil-adenoid operation, compared with 43% in the earlier study. The physique of the girls who had undergone operation was similar to that of the girls who had not been operated on, and girls of exceptionally low weight and height and above the average were as common in the one group as in the other. Common colds were more frequent among the tonsillectomized than among the rest, the rates being 114% and 97% respectively. Influenza was also slightly more prevalent among the former group—43%, compared with 39%. Only a few cases of tonsillitis occurred during the ten years, the tonsillectomized group having a slightly better record with a rate of 1%, compared with 5% for the other group. All other cases of sore throat were as frequent in the one group as in the other, the rates being 40% for those who had been operated on and 41% for the remainder. Susceptibility to the common infectious diseases of childhood was about the same in both groups, 26% of the tonsillectomized children and 24% of the others contracting these diseases. There was a considerable difference between the two groups for bronchitis, the rate among the tonsillectomized being 27%, while for the others it was only 16%.

An interesting comparison was made of the experience of the girls who had tonsils only removed and those who had an operation for adenoids only. The rate for bronchitis and for otorrhoea among the group who had only their tonsils removed was 23% and 0%, while the rates for the other group were 4% and 8% respectively. The number of girls concerned, however—tonsils only 57, adenoids only 24—is too small for definite conclusions. The author suggests that the removal of tonsils is the factor in the combined operation which is responsible for the reduction in tonsillitis and for the increase in respiratory infections, while the removal of adenoids alone reduces the incidence of respiratory infections but increases the liability to attacks of otorrhoea. In the combined operation the removal of adenoids failed to counteract the increase in respiratory diseases which resulted from the removal of the tonsils. This study supplies additional evidence to support the view that a large proportion of the tonsil and adenoid operations in children are unnecessary, entail some risk, and give little or no return, while a reduction in their number would not have any unsatisfactory result and might, perhaps, be beneficial.

The doyen of our profession, Sir Thomas Barlow, Bt., M.D., F.R.S., celebrated his 98th birthday on Sept. 4.

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[1] *Amer. J. Hyg.*, 1943, **37**, 121.
[2] *Lancet*, 1939, **1**, 1143.
[3] *Quart. J. Med.*, 1928-9, **22**, 107.
[4] *Epidemics in Schools.* M.R.C. Spec. Rep. Ser. No. 227, 1938 London.
[5] *Quart. J. Med.*, 1943, **36**, 119.

LISTER INSTITUTE OF PREVENTIVE MEDICINE

FIFTIETH ANNIVERSARY REPORT

The report of the Governing Body of the Lister Institute for 1943 is noteworthy as marking the fiftieth anniversary, not of the incorporation of the Institute, which took place in 1891, but of the beginning of its active operations. Sir Henry Dale, P.R.S., has been elected chairman of the Governing Body, and Dr. Alan N. Drury has succeeded Sir John Ledingham as director. The Governing Body has placed on record its appreciation of Sir John Ledingham's devoted work for the Institute over a period of 38 years.

Much of the research described in the annual report has already appeared in the journals, some of it in these columns, notably Felix's papers on the typhus group of fevers and on the typing of typhoid bacilli by means of Vi bacteriophage, the paper by Korenchevsky, Hall, and Clapham on the effects of vitamins on experimental hyperthyroidism, and that by Petrie and Steabben on the identification of the chief pathogenic Clostridia of gas gangrene.

Dysentery Prophylaxis

In a series of experiments designed to avoid the toxic reactions of a bacterial Shiga vaccine, H. L. Schutze has found that mice inoculated with diethyleneglycol extract of *Bact. shigae* develop a considerable immunity. With a mortality of 90 to 95% among the untreated, a survival rate of 60 to 80% may be expected among the inoculated. The optimum spacing of vaccine doses has been found in the case of the Shiga bacillus to be of some importance in establishing maximal immunity to infection. A definite superiority has been shown in the protection afforded when inoculations are separated by six weeks as compared with a shorter interval. The stability of this diethyleneglycol extract in the presence of preservative has been tested, and formalin and merthiolate have been found not to damage its potency. Inoculations of a small group of human beings have been carried out. The reaction was minimal in some, in others more pronounced, but of short duration and not excessive.

From experiments on the antigens derived from *Bact. shigae* and the protective action of their antisera, Steabben draws the inference that in the treatment of dysentery in man antitoxic serum containing an antisomatic or "anti-endotoxic" component may be of prime therapeutic importance as an adjunct to chemotherapy. Such a serum will not only neutralize the toxin but may also arrest bacterial invasion if given at the earliest possible moment. Further, as the serum possesses both antitoxic and antibacterial components it should also be of value in the prophylaxis of dysentery in man in an epidemic.

Substances inducing Tissue Permeability

Research has been carried out by McClean and others on the enzyme hyaluronidase. Experiments on its role in fertilization have shown that the transparent viscous fluid or gel in which the cumulus cells of the rat ovum are embedded is dissolved by hyaluronidase from any source, with disintegration of the cell mass. A close correlation has been found between the viscosity-reducing activity of the enzyme and the rate of denudation of the egg, no matter whether the enzyme comes from testis, spermatozoa, bacteria, or snake venom. This observation may perhaps explain why a reduction in the sperm count rapidly leads to sterility, as there would be a corresponding reduction in the concentration of the hyaluronidase in the neighbourhood of the egg.

It has been found that when the infecting organisms of the gas-gangrene group produce hyaluronidase this enzyme can be detected in the oedema fluid as soon as enough can be collected for examination, and in the muscle as soon as the earliest sign of infection appears. A large proportion of *Cl. welchii* strains associated with clinical gas gangrene produce hyaluronidase; all the strains of *Cl. septicum* which have been examined produce it, but only a small proportion of those of *Cl. oedematiens*.

Digestibility of Wheat Grain

Nutritional studies along several lines have occupied many workers at the Institute. Sir Charles Martin and others have tried to ascertain the degree to which the contents of the aleurone cells in the bran of wholemeal (100% extraction of the wheat grain) are made available during digestion. Of the extra 25% of the grain contained in wholemeal about 15% is bran, which consists of the outer integuments of the grain and the closely adherent aleurone layer, the latter containing as much as one-fifth of the total grain protein. Rats fed on diets in which finely ground bran was the only source of protein were killed, and the contents of the various portions of the alimentary tract collected separately, examined microscopically, and analysed for nitrogen content. The protein and fat of the aleurone layer were found to be utilized to a large extent by the rat, the cells losing their contents chiefly in the small intestine and caecum and occasionally also in the stomach. The nitrogen of the bran had an apparent coefficient of digestibility of about 60%, compared with about 83% for that of wholemeal (100% extraction) and 89% for that of white flour (75% extraction). In human trials the degree of disintegration of the bran observed on microscopical examination of the faeces, though variable, was similar to that which occurred in the rat.

A study of the faeces of rats fed on diets in which the protein was derived respectively from wholemeal, white flour, wheat bran, potato, and milk showed that the bacterial fraction of the faeces was lowest and contained the least percentage (36) of the total faecal nitrogen when the diet was composed of bran. With a wholemeal flour diet the bacterial fraction contained 53% of the total faecal nitrogen. When the diet contained white flour or milk the dry weight of the faeces passed was much lower and the bacterial fraction contained about two-thirds of their nitrogen, and the same was true more or less of a potato diet.

Nutritive Value of the Potato

Compared with wheat, most varieties of potato have a much lower nitrogen content, and since less than half of this nitrogen is in the form of protein certain researches have been continued by Chick and others to determine the nature of the other nitrogenous compounds and their nutritive value. Preliminary tests with young growing rats have shown that the protein (tuberin) separated from juice squeezed from the raw potato possesses a biological value slightly superior to that of the proteins of whole wheat, notwithstanding the fact that the latter are more digestible and better absorbed. It has been found possible to rear young rats from weaning on a diet containing whole cooked potato, fresh or dried, as sole source of nitrogen. The variety used was the "King Edward," grown on the fenlands and containing a rather high nitrogen content. The nutritive value of the protein separated from the potato and of the total nitrogen as contained in the tuber is much greater than that of the whole nitrogenous concentrate prepared from raw potato juice, containing only the more easily extracted nitrogenous substances.

Other Nutritional Studies

A nutritional survey covering 374 women employed in Oxford factories and 288 housewives in the same locality revealed a relatively high incidence of goitre and of dorsal spinal curvature, the latter being diagnosed in about 7% of 553 women examined. Many cases of dorsal spinal curvature have also been found among Oxfordshire school children. A connexion is suggested with low iodine and high fluorine content of water and soil, and the matter is being further studied.

Investigations on vitamin C in plant metabolism have shown that the vitamin content of unripe green tomatoes is considerably lower than that found in red tomatoes ripened in store after the season is over. Tomatoes ripened in store attain a vitamin C content similar to that of fruits ripened on the plant.

The relative effects of butter and margarine in preventing fat-deficiency disease in rats when added to a completely fat-free diet have been examined, and butter has been found to be rather less effective than margarine in preventing this condition. This is held to dispose of a suggestion that the increased substitution of margarine for butter in wartime diet is a responsible factor in producing dry and scurvy skins.

The Lister Institute's collection of type cultures, housed at Elstree, received some 150 new strains during the year under review.

NAGUIB MAHFOUZ PASHA

ADMISSION TO HONORARY F.R.C.S.

Surg. Rear-Adml. G. Gordon-Taylor, as Senior Vice-President of the Royal College of Surgeons of England, recently admitted to the Honorary Fellowship Prof. Yudin and Prof. Burdenko during the visit of the British-American Surgical Mission to Moscow. On his way back from this arduous journey Adml. Gordon-Taylor also admitted to the Honorary Fellowship Dr. Naguib Mahfouz Pasha, professor of gynaecology in the Fuad University, Cairo. The ceremony took place in the presence of a large number of members of the Senate and of the Medical Faculty of the University, and many British and American officers. By a happy chance three members of the Council of the College of Surgeons were also present. Another coincidence, and a pleasant one for Egypt, was that the ceremony took place on the day it was announced that Mussolini was deposed from power. We print below the text of Adml. Gordon-Taylor's address of welcome to the new F.R.C.S.

"Naguib Mahfouz Pasha, the Council of the Royal College of Surgeons of England by unanimous vote elected you an Honorary Fellow of the College over three months ago. This is the highest honour which the College can bestow; the Honorary Fellowship is limited to 50 names, and is conferred almost unreservedly upon those who have distinguished themselves in surgery, whatever be their country or clime. This chance though fleeting visit of mine to your country suggested to the President that I might be charged with the pleasing task of presenting you with the insignia of the Fellowship amidst your colleagues in Cairo, the scene of your meritorious surgical work. The story of Great Britain cannot compete in years with your historic land, whose civilization goes far back for millennia and aeons of years into the dark backward and abysm of time; far less can our College claim to vie with you in the tale of the centuries. Nevertheless our ancestral saga stretches back dimly for over four hundred years, and as the College of Surgeons our existence dates from the earliest dawn of the nineteenth century. This is not the first time that this honour has come to Egypt. His Majesty the late King Fuad graciously accepted the honour; a second recipient is Sir Ali Ibrahim Pasha, Director of the University Hospitals and Dean of the Faculty of Medicine, the doyen of Egyptian surgeons and respected of all men.

"In awarding you this honour, Naguib Mahfouz Pasha, the Council of the Royal College of Surgeons of England recognizes your distinguished work in your own special branch of surgery, and the pre-eminent position which you hold in the world of gynaecology; it also bears in mind the wondrous museum illustrating the problems of the maieutic art which was created by your own labours, and it further recognizes your administrative ability, your efforts on behalf of medical education in Egypt, and your staunch allegiance to the Allied cause. It is perhaps not inappropriate, although exceptional, that this honorary Fellowship is being conferred upon you far beyond the precincts of that building in Lincoln's Inn Fields, battered and burned by Hun air attack. It is sometimes in adversity and misfortune that we find our truest friends, and you surgeons of Egypt made haste to assure us with your promises of aid to restore, recreate, and reconstitute a temple of anatomy and pathology worthy of the name of John Hunter and of his tradition. It is, then, perhaps not unfitting that to-day's ceremony should take place in your own historic land, where obstetrics already existed as a surgical specialty in the fourth millennium before Christ."

Reports of Societies

ASCORBIC ACID IN IDIOPATHIC METHAEMOGLOBINAEMIA

At a meeting of the Section of Anatomy and Physiology of the Royal Academy of Medicine in Ireland Dr. J. DEENY, Prof. H. BARCROFT, and Prof. D. C. HARRISON presented a communication on familial idiopathic methaemoglobinaemia and its treatment by ascorbic acid, describing the condition in two brothers.

Only two other instances of this disease had been found in the literature (Bensley *et al.*, 1938; Lian *et al.*, 1939). In the present instance cyanosis was persistent and dated from birth in one case and from before puberty in the other. The face and hands of both brothers were slate-coloured. General health was good, and one brother played hockey although his blood contained nearly 50% of the total blood pigment in the form of methaemoglobin. There was no history of drugs. Deeny (1940) had reported that ascorbic acid and sodium bicarbonate had a favourable effect on two cases of polycythaemia, and he had investigated the possibility that this treatment might also be of benefit in the cases of cyanosis due to methaemoglobinaemia. The first of the two brothers to be given this treatment showed a dramatic improvement and cyanosis disappeared in about 10 days. In the second brother the cyanosis similarly disappeared, and frequent determinations of methaemoglobin in his blood showed that it fell from 43 to 6% of the total blood pigments in about a month. At the same time there was a fall in the total pigments, in the red cell count, and in the reticulocyte count. Both brothers had now been on the treatment for a year and the improvement was maintained. At the time the authors were not aware that Lian *et al.* (1939) had already observed the favourable effect of ascorbic acid on a case of this disease; they also confirmed the latter's finding that ascorbic acid could convert the methaemoglobin in these patients' blood into haemoglobin *in vitro*.

Dr. DEENY read clinical notes of two cases and described the treatment in detail; the patients, he said, were blue in colour and were normal after the treatment. Prof. HARRISON described the pigment changes which occurred during the treatment. The pigment was intracorpuscular and there were no other abnormal pigments. Prof. BARCROFT, discussing the rarity of cases, said search through the literature had shown altogether 12 since 1930 and none before. Of these only six were definitely familial—Dr. Deeny's two, two in Paris, and two in Montreal. A feature was the persistence in the colour: in 9 of the 12 cases it had been there since birth, and in the other 3 since before puberty. All had good general health; all showed a tendency to polycythaemia. Treatment consisted of an intravenous injection daily of 100 mg. of ascorbic acid. All the patients improved.

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RECENT EXPERIENCE OF WAR NEUROSIS

A meeting of Allied psychiatrists was held at a base hospital over-seas on June 5, when Lieut.-Col. S. A. MACKEITH presided, and the subject for discussion was war neurosis.

Lieut.-Col. R. R. GRINKER (U.S.) said war neuroses did not constitute a clinical entity with characteristic and invariable symptoms. Statistics of frequency were unreliable as cases were diagnosed by different psychiatrists, and the syndromes varied from day to day and place to place. There were nine syndromes: (1) free floating anxiety, severe and moderate; (2) somatic regression; (3) psychotic states; (4) conversion symptoms; (5) depressions; (6) psychosomatic visceral disturbances; (7) anxiety complicating concussion states; (8) exhaustion states; and (9) fatigue states, particularly in flying personnel.

Severe anxiety states were characterized by psychological and physical manifestations of terror. The patients were fearful, apprehensive, and showed bizarre and peculiar behaviour patterns. There were marked tremor, intolerance of noise, and a startle reflex. Only a few islands of normal behaviour persisted. Some persons were mute and dependent like a child; others showed varying degrees of stupor, mutism, and amnesia with little evidence of anxiety. There was thus a splitting of the personality in these cases resembling schizophrenia, and as such they were often erroneously diagnosed. In patients with moderate anxiety states there were insomnia, tremor, restlessness, and signs of sympathetic over-activity; they had severe battle dreams and were intolerant of noise. They recollected well the source of their anxiety and rapidly seemed able to control it. The clinical condition, however, was no index of the severity of the precipitating trauma or the quantity of anxiety beneath the surface. This could only be brought out by pentothal or during air raids, which were a good test of the patients' stability.

Patients with somatic regressions looked as if they had organic disease of the brain from which they had "recovered" completely. The regressions took the form of severe foetal pictures and attitudes, extrapyramidal symptoms of rigidity, coarse tremors, masked facies, excessive sweating, propulsive gait, etc. In some there were severe speech defects. In many there was no conscious anxiety: the emotion was only liberated as the symptoms disappeared. In group 3 severe anxiety states with paranoid projections occurred. The paranoid element indicated hostility within the patient; with proper care these people could be restored. Group 4 was the only one in which the term "hysterical" was justified. Physical symptoms of a defensive nature like deafness, visual difficulties, and regressive phenomena like astasia-abasia or stuttering were included in this group, which contained only a few true cases of conversion hysteria. These were usually in the form of weakness, monoplegia, hemiplegia, sensory defects, or numbness. They seemed directly related to a minor injury at the traumatic site. The patients were blandly without emotion, but when the symptom was relieved there was severe anxiety.

Depressions were seen, especially in the obsessed person. Many were acutely precipitated by war situations and often

associated with gastro-intestinal symptoms. The dependent passive type reacted by depression, which continued after the anxiety was reduced. Psychosomatic visceral disturbances were most often observed with gastric conditions. Very few cardiac syndromes had been seen, in contrast with the last war. All degrees of anorexia, abdominal pain, nausea, and vomiting were observed in persons with little subjective anxiety, or with apprehension only about their symptoms. Enuresis for the first time and diarrhoea were other psychosomatic symptoms.

Concussion states were frequently complicated by anxiety states, which had to be treated first; the residual headaches, dizziness on change of posture, intellectual difficulties, and visual disturbances had to be treated by long periods of rest. To force these patients to get up and back to duty was not rational therapy for the concomitant neurosis. Exhaustion states were seen especially in the forward area; very few cases had been handled at the base. In patients who apparently came into this category there was usually much unconscious anxiety. Fatigue states were found only in flying personnel, and constituted an incipient neurosis caused by mobilization of anxiety and tension without opportunities for proper release. The actual neuroses in airmen were little different from those in other Services. There were few severe anxiety states. They were mostly mild anxieties, depression, gastric dysfunction, and conversion states. In all these cases the influence of secondary gain was important. The individual had become dependent and learnt to live with limited resources. Unless early treatment was started the influence of secondary gain increased, and the individual would continue to be dependent and lean on the State.

Place of Narcosis

Capt. SPEIGEL (U.S.) thought that sodium pentothal, which produced a semi-narcotic state in which the patient could face the traumatic battle situation and relive it with proper emotional response, was indicated in all cases of severe war neurosis with stupor, mutism, somatic regressive and regressive psychosis-like manifestations, and amnesia. Response was dramatic; in most instances there was rapid recovery from major symptoms, but in more severe cases a series of four or more treatments might be required. The residual anxiety and associated symptoms had to be dealt with by psychotherapy. Pentothal was also indicated in moderate anxiety and conversion states to determine the intensity of, and to release, unconscious anxiety. It was also useful in concussion states to distinguish symptoms due to anxiety from those of organic origin. Subsequent treatment consisted of a series of half-hour interviews with the patient. The psychotherapist had to establish a positive transference identification, assuming the role of the sympathetic but firm father figure, reassure the patient that he would not have to return immediately to combatant duties, deal directly with the anxiety by taking over the patient's temporarily lost ego functions for him, and deal with the super-ego reaction, the passive dependent trends, the conversion symptoms, and the unconscious hostility and its transfer to the super-ego in the form of depression. The last was the most stubborn psychotherapeutic problem. Hostility arose from frustration of dependent needs, from feelings of injury and abandonment in traumatic situations, from loss of object relationship through death of friends and separation from the group, and was expressed through the super-ego and directed at the ego, which became correspondingly weakened. If transference could be made sufficiently stable some of this hostility could be absorbed by the psychotherapist, but this was difficult in an active theatre of war. The aim of treatment was to return the patient to duty as early as possible. Few would be returned to full combat duty from a base hospital.

The Precipitating Factor

Major C. KENTON said that anxiety was the precipitating factor and common symptom in breakdowns, and was the basis on which the different forms of war neurosis were imposed. It was an apparent paradox that a chronically anxious man could go through so many situations producing anxiety before breaking down. Referring to the frequency and degree of psychological regression in his cases, he said it appeared as if the ego defences to anxiety were overwhelmed in greater or less degree, producing clinical pictures of stupor, confusional states, uncontrolled primitive behaviour, psychotic pictures often of a bizarre character, childishness, apparent idiocy, and, in some exceptional cases, simian behaviour. The precipitating traumatic factor, although often specific in a psychological sense, was only the final one in a long process kept under control until then. He could not agree that the suddenness of the trauma "shocked" the patient into neurosis. Discussing the response to abreactive therapy, he said that results with pentothal had been remarkable, but it should be administered only by those trained in its use; inexpert use had made subsequent treatment difficult, producing "pentothal-resistant" patients. Prolonged treatment after the initial improvement by abreactive and short-term psychotherapy was difficult, such factors as secondary gain, imperfect transference, and resolution of guilt feelings playing a part. Hypersensitivity to noise and fear of air attacks were frequent sequelae, facts well shown by the "testing situation" of occasional air raids. Continuous narcosis was of value in patients who showed evidence of exhaustion. These cases on the whole were rare at the base, but responded well to abreactive therapy following a period of narcosis. A characteristic of the psychoses was their episodic nature, remission and relapse occurring rapidly, often without apparent external cause. Convulsive therapy gave good results in the depressive and catatonic states. He concluded by saying that 81.5% of the patients with neuroses had been returned to some form of duty in that theatre of war—a very satisfactory result.

Experiences in the Forward Area

Capt. F. R. HANSON (U.S.) said that all cases of blast injury were diagnosed as exhaustion for administrative reasons and to avoid the diagnosis of "shell shock." Phenobarbitone 4 to 6 gr., nembutal 4½ to 6 gr., or sodium amytal 7½ gr. was given immediately by the mouth. The men were then sent to the evacuation hospital (equivalent to a C.C.S.) in a drowsy state and divided into those for immediate evacuation—severe anxiety reactions, psychotic states, and recurrent cases—and those to be kept for treatment. The latter lasted 4 to 5 days. Phenobarbitone gr. 2 twice a day was given for 3 days, after which all sedatives were stopped except for a small nightly dose. There was no impression of illness or hospitalization, and men were made to get up, stand in line for their food, and help with ward routine. At the end of 5 days the patients were divided into those fit to return to combat duty and those to be evacuated. The criteria were: past history; type, severity, and cause of the reaction of the patient and whether he responded to treatment; desire to return to duty; social response and reaction to noise. No one was allowed to panic, and physical restraint was used where necessary. As the cases were all of the same type group therapy was possible. 60% of men returned to full combat duty within five days. In a follow-up of 44 cases after three weeks of further fighting 89% had remained on duty, including 1 killed and 6 wounded.

Discussion

In the discussion several speakers said that the aims of psychotherapy were: (1) to return men to full duty; (2) to return men to selective duties: over 80% at the base could be returned for such duties; (3) to treat the man's illness; and (4) to reduce the drain on the State for pensions, etc. In a great number of cases there had been difficulty in meeting the individual problems of a patient owing to the very limited number of psychiatrists. Brigadier J. R. REES stated that the recovery rate curve and the number of patients psychiatrists had to deal with were directly correlated.

Correspondence

The Medical Superintendent

SIR,—I have noticed with deep regret a tendency to criticize medical superintendents from time to time in your correspondence columns. Only those closely associated with Poor Law infirmaries for the past twenty years can have any idea of the truly splendid work of these men. There was a time when the infirmary was like some tale told by Dickens illustrated by Hogarth, and the conversion of infirmaries into proper hospitals has been one of the greatest medical achievements of our time.

Surgically and administratively results obtained are remarkable because of the uphill nature of their efforts and because medical superintendents have not only had to carry out difficult reforms in the work and buildings but they have had to persuade the rate-paying public that all this was necessary. It has been no light task, and without the help of Neville Chamberlain, our greatest Minister of Health, it could never have been achieved. Chamberlain saw the need for freeing the rate-supported hospital from the curse of the Poor Law, and never ceased to support all efforts to that end.

Virtue is its own reward, and medical superintendents can well afford to ignore criticism, safe in the knowledge that they have conferred on the sick poor inestimable benefit. At a time of great crises and anxiety it was largely to the rate-supported hospital that the country turned for help, and there could have been no Emergency Medical and Hospital Service had it not been for the devoted and fine work of medical

superintendents and their committees in creating such hospitals. Let us, then, give honour to whom honour is due, and freely acknowledge the great debt that medicine and the whole country owe to our medical superintendents.—I am, etc.,

New Barnet. JOHN ELAM.

Vitamins and Fitness

SIR,—I have read with great interest in the *Journal* of Aug. 28 (p. 265) the paper on vitamins and physiological function by G. Neil Jenkins and John Yudkin, as, with collaborators, I have been carrying out somewhat similar investigations, a report on which is ready for publication and the results of which I cannot anticipate. Drs. Jenkins and Yudkin in my opinion are quite justified in saying that the non-induction of physiological change by the giving of vitamins to their subjects may have been due to such subjects not being deficient in these nutriments before administration began. I would like to suggest that they carry out another investigation in which they compare vitamin-deficient children (found by testing) with children who are not so deficient. Another point: in the Manchester experiment of Harper, Mackay, Raper, and Camm (*Journal*, 1943, **1**, 243) the subjects were adolescents · Drs. Jenkins and Yudkin's subjects were pre-adolescents; this I am sure would make a difference. I have found differences myself (pre-war) in 14-year-olds in Glossop, and in S. Africa E. Jokl and E. H. Cluver, while finding no differences in physical efficiency between well-off and badly off (nutritionally) children before puberty, found that after puberty there were striking differences.—I am, etc.,

Glossop. E. H. M. MILLIGAN, M.D., D.P.H.

Public Attitude to Venereal Disease

SIR,—I think everyone will agree that it is of vital importance that all persons suffering from venereal disease should be under treatment and kept under treatment until cured. The Ministry of Health has done everything possible to ensure that this shall be so and is spending much money on propaganda. The efforts of the Ministry are being undermined by certain misguided persons, who are doing possibly as much harm as the Ministry's propaganda does good.

It has come to my knowledge that certain employers of labour, or their managers, have threatened with dismissal, and in some cases have dismissed, persons in their employ who, they have found out, are attending a venereal diseases clinic unless they can produce a certificate stating that they are not suffering from V.D. This action presumably is taken under the delusion that they are safeguarding their other employees. I have reason to think in some cases that it is prompted by a self-righteous attitude against persons whose morals are no worse than the majority of the public.

Persons with venereal disease who are under treatment are not a source of danger to others. Those who are highly contagious are suspended from work by the medical officers of the clinics until they are no longer a danger. It is the untreated cases that are a danger, and this high-handed action by employers prevents infected persons seeking advice, and tends to prevent those under treatment continuing until cured. Moreover, these unfortunate people become ostracized by their fellow-workers, and their lives made a burden. I know of one case where a girl was thrown out of her lodgings from this cause. It is high time something was done to put a stop to this persecution. That there are many mental defects still at large is shown by the notices dealing with V.D. put up by the authorities in public lavatories being torn down and defaced.—I am, etc.,

London, N.W.3. HAMISH NICOL, F.R.C.S.ED.

Infective Hepatitis?

SIR,—Dr. John Waring in your issue of Aug. 21 (p. 228) describes a case of benign lymphocytic meningitis showing transient icterus, and immediately classifies it along with cases of gastro-enteritis, ileo-colitis, and infective hepatitis with and without jaundice—assuming on rather slender evidence that all these conditions have been due to the same infecting agent. On this assumption he would like to discard the now accepted term of "infective hepatitis," substituting for it the vague and nebulous expression "influenzal hepatitis."

That cases presenting identical symptomatology, with and without jaundice, are frequently seen together in time and place is well recognized, and in the present state of our ignorance it seems most reasonable to classify these as infective hepatitis. It is not easy to see how the introduction of such an expression as "influenzal" can do anything but darken the gloom which already surrounds these fascinating syndromes.

Had Dr. Waring given us fuller pathological findings in his case it would perhaps have been easier to accept it as an example of infective hepatitis showing meningeal changes, and might then have proved to be a valuable piece of evidence relating to the aetiology of this condition. A brief examination of the available literature leads me to believe that infective hepatitis and meningitis are but rarely seen; while, on the other hand, it is well known that leptospiral infections very frequently give just this picture. If Dr. Waring had recorded the white cell count, often of value in differential diagnosis, the blood urea level, and the presence or absence of albuminuria and cylindruria, it might have been possible to make a provisional diagnosis of Weil's disease. Even at this time—nine months after the illness—an agglutination reaction would probably clinch matters.

There is considerable evidence to-day that many of the long-recognized cases in which jaundice has unexpectedly presented—the icterus often seen in acute infections such as pneumonia, and that so often met in the therapeutic use of the arsenicals—may one day be shown to be due to a latent virus infection activated by the trauma of infection or drug. This should not, I feel, justify hurried and unconfirmed diagnostic assumptions, such as seem to have been made in this paper.—I am, etc.,

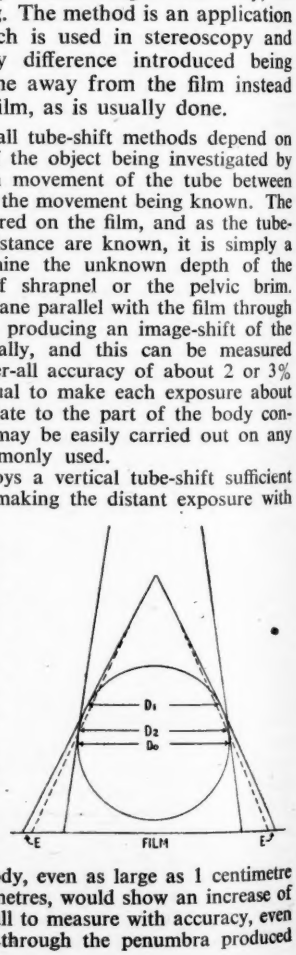
Winchester. KENNETH M. ROBERTSON.

Precision Method of Cephalometry and Pelvimetry

SIR,—Dr. Paul Cave's article on pelvimetry and cephalometry (Aug. 14, p. 196) describes a method of *x*-ray mensuration which is not by any means new, but which is not generally used because it possesses many disadvantages and may, in some cases, be grossly misleading. The method is an application of the tube-shift principle, which is used in stereoscopy and foreign-body location, the only difference introduced being movement of the tube in a plane away from the film instead of in a plane parallel with the film, as is usually done.

Taking the depth-location first, all tube-shift methods depend on the production of two shadows of the object being investigated by two separate exposures taken with movement of the tube between them, the distance and direction of the movement being known. The movement of the shadow is measured on the film, and as the tube-shift distance and the tube-film distance are known, it is simply a matter of triangulation to determine the unknown depth of the object, whether it be a piece of shrapnel or the pelvic brim. Normally the tube is moved in a plane parallel with the film through a distance of 5 or 10 centimetres, producing an image-shift of the order of 1 or 2 centimetres usually, and this can be measured to half a millimetre, giving an over-all accuracy of about 2 or 3% in the depth calculation. It is usual to make each exposure about half the normal exposure appropriate to the part of the body concerned, and the whole procedure may be easily carried out on any plant, a portable unit being commonly used.

The method of Dr. Cave employs a vertical tube-shift sufficient to double the tube-film distance, making the distant exposure with this greater distance between 5 and 6 feet, which is mechanically impossible with most plants; in addition, the part-exposure made from this greater distance would have to be four times that made at the shorter distance to give equal intensity, producing greater tube wear, which we are urged by the Ministry of Health in a recent circular to avoid.



The variation in size of the two shadows he thus produces will be considerable for a large object but minute for a small one, so that the diameter of the pelvic brim would show several centimetres increase, while a foreign body, even as large as 1 centimetre in diameter at a depth of 10 centimetres, would show an increase of a fraction of a millimetre—too small to measure with accuracy, even if it could be clearly demarcated through the penumbra produced

by the superimposition of shadows. The lateral tube-shift method gives an image which is the same for large and small objects, and the shadows overlap for only part of their extent, so that they can usually be clearly distinguished and accurately measured. It thus appears that Dr. Cave's method does not compare favourably with the common methods of depth location, and now its special claims in obstetrics require some comment.

The practice of pelvimetry differs in no way from the depth measurements carried out above, and with a lateral tube shift the distance of the brim from the film can be determined and the pelvic measurements, as recorded on the film, corrected by simple triangulation, as described by Hastings. This calculation can, of course, be avoided altogether by the use of a direct measuring method such as with the Thoms grid, which is exposed on to the film from the same level as the brim, but, owing to the uncertainty of definition of the brim level, the tube-shift method gives rather more accurate results. Dr. Cave's method would presumably give results as good as any other in this instance, but it must be pointed out that very heavy exposures are required in any case for pelvimetry radiographs, and a really enormous exposure must be required for his distant tube position.

In the case of cephalometry, however, his method is liable to serious error, which may give dangerously misleading results. The lateral tube-shift method is successfully used in this investigation, but is also liable to a certain degree of error, as the object is large and its size must be considered in three dimensions. This means that the shadows cast in the two positions of the tube are not cast by the same diameter, and so triangulation rules do not strictly apply, but the error is small and is usually ignored. In the vertical tube-shift method, however, the two shadows are cast by completely different diameters, as shown in the diagram, and calculations based on these measurements will make the object appear to be further from the film, and will lead to an estimate of the diameter of the head which is too small—a most vital error.

My conclusions are that the method is not new, that it is inefficient in general use, and dangerous in cephalometry.—I am, etc.,

Hove. E. MILLINGTON, D.M.R.

Fracture-dislocations of the Spine

SIR,—Mr. A. H. G. Munro has had a very wide experience in the treatment of fracture-dislocations of the spine, and his comments (Aug. 21, p. 246) are consequently of much interest. He apparently does not agree with the pessimistic view that cases of cord injury with complete loss of function lasting twenty-four hours are permanently complete lesions, and it is to be hoped that he is right. In my paper I was not quite so dogmatic as he seems to think, and I suspect that he has been misled by a mere synopsis. The number of cases was relatively small—21 cord and cauda equina lesions—and I went no further than saying that my series supported this pessimistic view—a view held by Sargent and Trotter, and, more recently, Naffziger, among other distinguished observers. Furthermore, the case Mr. Munro cites in support of his own more optimistic view is not of the type to which I was referring: the cord lesion was incomplete on admission, and only progressed later to a complete loss of function. In such cases it is generally agreed that there is a possibility of recovery, but this is a very different matter from the patient with complete loss of function immediately after the accident, and it is to this type I referred.

As regards frequency of locking of articular facets, my figures, though small, agree with those of Mr. Munro: of twelve cases with dislocation, locking was present in seven. Mr. Munro, in a large series of operations, has found internal fixation unnecessary. It should, however, be realized that at operation the processes do not just snap back into place with immediate stability resulting. There is a marked tendency to redisplacement, which can sometimes only be overcome by extreme hyperextension. In one case operated on by Mr. Sloan Robertson deep respiration was sufficient to cause redislocation, and to overcome this the spinous processes were drilled and fixed together by stainless steel wire. Subsequently I have done the same in two cases, and, in my opinion, this relatively simple procedure is well worth doing to ensure maintenance of reduction until the hyperextension plaster is applied. In the cervical region I would go further and say that there are cases in which it is impossible to maintain reduction without some form of internal fixation.—I am, etc.,

Raigmore Hospital, Inverness. R. C. MURRAY.

Skin Sensitivity to Sulphonamides

SIR,—During the past two months I have seen several cases of cutaneous hypersensitivity to sulphonamides of the type reported by Park (July 17, p. 69). In general, whatever the route of administration of the sulphonamide, the eruption was almost confined to the head and neck, and the hands, especially the dorsal surface—i.e., the parts exposed to light. The lesions consisted of erythema, papules, with much exudation, and often on the hands bullae and pustules. Three-quarters of my cases were in markedly seborrhoeic subjects, and were followed by much desquamation and dryness of the skin. Other features not mentioned by Park I have noticed are oedema of the eyelids in every case, and conjunctivitis in two cases. A case was recorded in the *Journal* of April 3, 1943, of this sensitivity persisting for fifteen months. One of my cases, however, had a similar reaction two years previously, so there seems to be no time limit to it, and it may well persist throughout life without desensitization. One severe case, which also developed pyrexia, showed a strongly positive scratch test, with erythema and vesicles, when performed on the forehead.—I am, etc.,

London. C. D. CALNAN.

Sulphonamides in Asthma

SIR,—Your issue of May 1 has just come to hand, and in it I note with considerable interest the letter of D. K. O'Donovan recommending sulphonamides in asthma (p. 551). The use of sulphapyridine in old asthmatics associated with chronic bronchitis and emphysema has been standard practice in my medical wards for the past two years. The results, although not constant, have usually been surprisingly good, and this has been attributed to the occurrence of bouts of low-grade bronchopneumonia in these cases. These bouts are considered to precipitate the attacks of asthma, and sulphapyridine successfully combats them. At first the use of this drug was confined to those cases showing fever with or without leucocytosis. In this type of case the results have been consistently good. More recently this treatment has been tried in cases of asthma without fever, but in these patients the response has been more irregular, as is to be expected. It might further be pointed out that in certain areas of the Indian Deccan patients suffering from chronic bronchitis with asthma and emphysema are common, particularly during the monsoon and the cold seasons of the year. Chronic upper respiratory infection is almost invariably associated in them.—I am, etc.,

Miraj, India. L. B. CARRUTHERS.

Boiled Milk and Raw Protein

SIR,—One does not wish to return the boiled milk discussion to your overworked staff and correspondence columns. But as reported in the *Journal* (Aug. 21, p. 251), a statement is made, quoted from Lord Horder in Parliament, about milk which rather upsets people who are trying to rear other people's babies on something other than their natural food. The report states, "Boiling definitely lowered its nutritive value." Admittedly the words are taken alone and out of context. Looking up my most recent book on children's diseases (*Sick Children*, Donald Patterson, 1937) it is stated as one of the advantages of boiled cows' milk that it is more digestible. Granted that this is not a comparison with pasteurized milk, but it is in agreement with the generally accepted opinion of civilized races that cooked foods, apart from fruit and certain fresh vegetables, are best. Should milk be excepted from this general rule that what one may call animal foods are best cooked? (I do not, of course, mean food fed to animals, but my composition has always been poor.) This statement that milk loses something by boiling is widely prevalent. Now backed by a statement in Parliament by Lord Horder, humble G.P.s such as I will have the greatest difficulty in controverting it.

Are any controlled experiments reported which show that babies fed on raw cows' milk thrive better, and that babies fed on pasteurized milk thrive better, than babies fed on milk just brought to the boil—which is my definition of boiled milk? And by this question I mean to include children arriving at school age. If such experimental evidence is available, I have not yet run across it. When the baby is weaned from milk and goes on a mixed diet should we continue the practice of

giving raw foods such as raw fish, to which certain Oriental races are said to be partial, or raw meat, in which certain African races are said to indulge? And if we continued the practice of giving raw animal proteins to human children after weaning, would these be more advanced at school age? We know the advantages given in the textbooks of cooking animal proteins, but, apart from the risk of infection by various parasites, I do not know of any controlled experiments either. Is there such a radical change in human babies that up to ten months they thrive best on raw foods, and immediately begin to thrive best on cooked foods thereafter? Practically, raw milk protein is the only animal protein which we do not cook. We cannot all afford oysters. One does not know of any experiments on human babies which clearly indicate that they might not thrive best on cooked human milk.

Whether the statement is made in Parliament by dignitaries of the medical profession or by anyone else, one can only decide that the statement that milk loses something by cooking—that is, something that is not counteracted by a corresponding gain—must be looked on as pure superstition.

Meantime, I have to begin all over again, arguing with distracted mothers who have failed to pacify a baby with several sorts of patent foods, and who assuredly, when boiled cows' milk is suggested, will triumphantly tell me that Lord Horder agrees with them, that boiling milk removes some spiritual essence which babies need—forgetting that all the patent foods they have tried are already well cooked.

Later on, when we tell mothers to be sure to cook fish and meat for toddlers, as well as most vegetables, will we be "stigmatizing and sabotaging basic foods"? There does seem to be a lack of logic somewhere. And logic still exists, in spite of Stuart Chase and others.—I am, etc.,

W. L. ENGLISH.

*** We give the following quotation from *The Pasteurization of Milk*, by G. S. Wilson (Edward Arnold and Co.). "Where this [i.e., pasteurization] is impracticable, as in the home, the milk can be brought rapidly to the boil in a water-jacketed saucepan fitted with a lid to prevent scum formation, and, unless it is to be drunk immediately, cooled at once to as low a temperature as possible so as to interfere with the growth of any non-pathogenic organisms that may have survived." To quote Prof. Wilson again: "If neither Pasteurized nor Tuberculin Tested milk can be obtained, then the milk should be boiled, or dried milk made up with some suitable flavouring agent should be supplied."—ED., *B.M.J.*

The Government's Milk Policy

SIR,—Milk is not necessarily safe because it has been pasteurized. Samples of pasteurized milk taken by me to the Emergency Public Health Laboratory in the unopened bottles as delivered were found to contain:

Lab. Ref. No. Q.755—*B. coli* in 3 out of 3 tubes inoculated with 1/100 ml.
" " " S.740 " " 3 " 3 " " " "
" " " V.629 " " 2 " 3 " " " "
" " " V.627—Plate count 140,000

The bottler as well as the milker may have dirty hands or a throat infection capable of contaminating the milk after it has been pasteurized. I am quite certain that para. 28 of the Milk and Dairies Order is not strictly observed. I have taken rinsings (*Practical Public Health Problems*, Sir W. Savage, p. 88) from several churns and bottles said to be sterile and ready to be refilled and found them to be contaminated. I regard every person who handles the milk as a potential source of pollution.—I am, etc.,

E. J. CROSS,
Medical Officer of Health.

St. Neots.

Medical Boarding for the Merchant Navy

SIR,—Dr. S. H. Waddy's able letter (Aug. 21, p. 248) raises a most important point. It passes comprehension how our mercantile marine can go on year after year without any medical organization. The Shipping Federation has shirked its responsibilities in this matter, which is not so necessary for all those vessels that have competent ship surgeons, but for the many ships that have no medical personnel the need for shore overhaul of sailors is very urgent. Grade IV men with such disabilities as fits, diabetes, tuberculosis of the lung, hernia, duodenal ulcer, and venereal disease can put to sea as easily as Grade I men.

The Board of Trade pays attention to food, sanitation, and accommodation, but has no system of medical examination. A sailor may pass a good deal of his time at sea unfit for duty on account of illness, then go ashore, be patched up temporarily, and ship again: he may also malinger at will.

The last paragraph of Dr. Waddy's letter is on the right lines and should receive official attention without delay. Advantage could be taken of the medical recruiting boards throughout the country to examine all seamen for the Merchant Navy in order to start the scheme without delay. As rightly said, this is really a Government responsibility, and after the war it will be to the benefit of all concerned if the same system is carried on.—I am, etc.,

GEORGE DOUGLAS GRAY.

SIR,—Dr. Waddy's letter draws attention to one of the deficiencies in the present method of medical examination of merchant seamen, but it is hardly fair to the men to suggest that they are all malingerers.

In the past men have become seamen from choice. The medical standards have been lax and in certain branches of the trade non-existent, so that many men have been at sea for half their lifetime without medical examination. The doctor appointed by the Shipping Federation has time to make only a cursory examination and, it must be remembered, is employed by the owners to exclude the men who are unfit. It is no part of the examining doctor's duty to provide treatment or advice, and he functions as a one-man medical board. Nevertheless the standard of work is fairly high, and the number of men whom the doctor wrongly passes as fit will be found to be small. On the other hand, the power to mark a man as permanently unfit for service at sea also rests with the examining doctor, and this arbitrary power, which deprives the man for ever of his livelihood, is frequently used.

Many of the men now serving at sea have only returned to their calling since the beginning of the war, and their standard of physical fitness may well have been impaired by long years of unemployment. They may easily pass a medical examination without possessing the necessary stamina to stand up to life in the forecastle under black-out conditions for the long voyages which are nowadays so common. These men receive none of the physical training which is considered necessary in the fighting Services, and, with the exception of some of the better companies, do not have the benefit of any of the prophylactic measures which should be available.

The Merchant Navy requires a real health service so that in future fit men are taken into a service which will take pride in keeping them fit. Dental caries and dyspepsia are two of the commonest complaints among seamen, and there is an obvious association between the two. The Seamen's Hospital Society provides in London much of the necessary service, but of all our other great ports only Cardiff has a special seamen's hospital.

Our seamen are entitled to something better than a further strengthening of the means of depriving them of their right to follow their calling, and reform, when it comes, will need to be on a grand scale. Victuals, living conditions, recreation rooms, bathrooms, and toilets will have to take their place alongside protective inoculations and vitamin concentrates to make the work of the medical boards a mere formality. "Shirking" and "loafing" are mean terms to apply without reservation to a body of men who have followed so faithfully one of the most dangerous callings.—I am, etc.,

London, W.1. ALEC WINGFIELD.

British Spas

SIR,—The various Government Departments appear to have done everything possible to kill the work of the British spas. They have commandeered practically all the accommodation for offices, Government officials, civil servants, etc. The Ministry of Labour has depleted the trained staffs of the bathing establishments and spa hospitals in spite of urgent appeals to it and to the Ministry of Health. One skilled masseur, who has had over 15 years' experience, has been placed in the N.F.S., where he is employed in massaging the brasswork of the fire engines; this man has now been released. Another man,

fully qualified in wet and dry massage, has been placed in the R.A.F. as a hospital orderly, but is not employed in massage, as only women are so employed in that Force. Again, the authorities of the E.M.S. and the Ministry of Pensions do not officially approve of spa treatment, but concede its usefulness for civilians. The spa hospitals with their depleted staffs are working to capacity and are treating miners, munition workers, etc., and are returning quite two-thirds of them to work.

Those of us who have had long experience of spa treatment recognize, as the Soviet medical authorities do, that more is required than physical treatment by massage, diathermy, and other forms of electrical treatment. There is a danger in this country that physical treatment will mainly consist in such, and ignore the great usefulness of balneological and hydrological methods. On this point it is observed that the Supplementary Report of the Council of the B.M.A. draws the attention of the teaching bodies of our medical schools to the necessity for instruction in physical medicine, and points out that in many of the smaller towns neither the facilities nor the trained personnel are available; "the result is that a considerable proportion of patients treated at spa hospitals suffer from disabilities which might have been cured or arrested at home."

A great opportunity is being lost by our Government. In pre-war days thousands of pounds went out of the country annually owing to British people frequenting the Continental spas. Even if the war stopped to-morrow it would take months to renovate the hotels and get them in working order. There are hundreds of people waiting to have a cure who cannot get accommodation of any sort—hard-worked officials, munition workers, people who have contracted rheumatism from sleeping in damp underground shelters, men and women who have been invalided out of the Services, etc. This is an overcrowded and industrial island and no provision is made for health and rest centres for our people such as are found in Sweden and Russia. Discussions on health services, a State Medical Service, and the medical views expressed in the Beveridge report quite ignore this important point, and none of the discussions gets down to what is so urgently required in this country, and when the opportunity is so great for the Ministry of Health to embark on a comprehensive scheme which would produce so much benefit for the many.

Space will not allow me to enlarge on what is required. Town planning of spas, the elimination of all factories within a certain radius of the spa, large open spaces with numerous sun traps, the by-passing of all main through traffic, rehabilitation centres with occupational therapy; means of exercise, such as golf, tennis, bowls, etc.; psychological therapy, consisting of music, the drama, exhibitions of the arts, etc. Further, we should copy the Russians by having home farms attached to sanatoria, hostels, etc., providing them direct with fresh vegetables and pure milk.—I am, etc.,

Harrogate. G. L. KERR PRINGLE.

Learning the Art of Medicine

SIR,—I was most interested in Dr. D. W. Winnicott's letter (Aug. 21, p. 243) and agree with him. He points out that our professional work is partly science and partly art, and that if we have a State Medical Service the science may increase but the art will decrease, and the flood-gates will open wide to quackery. For there can be little doubt that the public at large suspects and fears our science.

The trouble begins with our education. We have gradually evolved from the necessity for Latin and Greek, and, in my opinion, it is time we evolved from chemistry, physics, and biology beyond the School Certificate standard. Few of us know the chemical composition or the number of grains—or is it grammes?—in a couple of tablets of sulphapyridine. It does not need a highly skilled chemist to prescribe a couple of aspirins for a headache. If this seems a sweeping statement I invite your readers to look at the physics papers set at the last First M.B. examination of London University. I would bet a lot that not a single practising medical man could pass, and that few indeed could give even a reasonable answer to a single question.

The inevitable evolutionary changes in our education must be to cut out that which is useless (the present First M.B. as a start) and substitute that which is useful. In my opinion it is essential that the art must be taught and learned, and the best way of doing this is to make each student do a year in general practice as part of his course.

I do not think it is yet appreciated sufficiently that the bulk of the work of the medical profession—the handling of the patient through his bodily and mental troubles—is done by general practitioners. Surely it is high time that the members who know the work that has to be done should have a larger control of the education of our students and a larger control of the profession itself in matters of policy.—I am, etc.,

Rotherham. ERIC COLDREY.

*** Perhaps we may anticipate some comments on Dr. Coldrey's letter by remarking that a good general education and a grounding in the discipline of the basic sciences are not useless lumber in the practising doctor's mind, even if details learnt in classroom and laboratory are forgotten.—ED., *B.M.J.*

London Teaching Hospitals Committee

SIR,—A committee consisting of two representatives of the medical committees of each of the London undergraduate teaching hospitals has been formed with the object of co-ordinating the views of the medical staff of these hospitals at the present time.

At a meeting on Aug. 17 the following resolution was passed, and we have been asked to bring it to your notice with a request that you may publish it:

"This meeting regards it as essential that freedom of expression in medical matters and hospital policy and freedom of medical practice be preserved in hospitals in any post-war reconstruction; and that a medical committee should be the advisory body to the Governors of an institution on medical matters."

—We are, etc.,

GEOFFREY BOURNE, M.D., F.R.C.P.,
St. Bartholomew's Hospital, *Chairman.*
London. W. D. DOHERTY, M.CH., F.R.C.S.,
Guy's Hospital, *Hon. Secretary.*

Psychiatry in General Hospitals

SIR,—While no unqualified affirmative can, of course, be given in reply to Dr. G. L. Alexander's invidious question (Aug. 14, p. 214), a categorical negative would do less than justice in view of the greatly varying nature of cases treated in our mental hospitals to-day. Moreover, there are many physical illnesses which would equally give cause for hesitation in similar circumstances because of their potentially disabling or propagational risks.

It seems pertinent to ask why, throughout the ages, disorders of the mind have, unlike most other varieties of human affliction, been singled out for social condemnation, since herein lies the meaning of that enlightenment to which we refer. The persistence of a stigmatizing attitude, even among some who might be expected to know better, is but an attenuation and modification of that attitude which in former days prompted punitive measures, such as the use of chains or corporal punishment, as appropriate treatment for the disordered mind.

The motive underlying this attitude in people otherwise not unkindly consists of a latent fear of their own unconscious forces; it is a projection of individual inherent anti-social tendencies, which, lying dormant in us all, have become manifest in the mentally disordered. Owing to the fact that the repression of these tendencies was in the first instance moralistically achieved, all subsequent lapses, irrespective of how caused, are viewed with condemnation—i.e., they become socially taboo. From various causes, many entirely physical in character, failure of repression may occur; thus it is to be found as the result of the toxaemias of pregnancy, in thyrotoxicosis, or yet again in the delirium of any acute infective disease. In the Hughlings Jackson sense, such manifestations, although psychically displayed, represent, at least temporarily, a lowering of the level of cortical physiological control.

The stigmatization of the disorders of mind, even in their minor manifestations (the so-called nervous breakdown is regarded with but veiled contempt), represents in fact an attempt to reinforce one's own repressions by condemning such untoward tendencies as may appear in others. This fear

of contagion and dim consciousness of personal susceptibility is readily rationalized so as to dispose of what otherwise would appear an unjust attitude. The remedy for the individual lies in his coming to terms with his own unconscious tendencies —an ideal only possible by the Freudian psycho-analytical approach. For the public in general, much yet can be hoped from their continued education as to the nature of mental disorder. This act of social justice can best be furthered by our great body of general practitioners, many of whom we know are already aware of the fundamental need for an attitude of scientific objectivity towards the problems of psychiatry.—I am, etc.,

Warlingham Park Hospital. W. H. SHEPLEY.

Health and Social Medicine

SIR,—The sudden attack of modesty by which the spokesmen of the profession have recently been overwhelmed is not without its comic side. We all agree, I hope, that the labourer who puts in the sewers has just as important a place in the social structure as the doctor, but even the least well instructed member of the populace to which Dr. W. N. Leak refers in his letter (Aug. 21, p. 243) will hardly fail to see the motives underlying the attempt by the profession to underrate its own importance and to stress instead the necessity for environmental reform.

Unfortunately, even if a Utopian state of affairs could be reached to-morrow in matters of housing, nutrition, and general standard of living, there would still be need for an efficient curative service for a long time to come. Cities are not rebuilt in a day. We have been officially warned that we shall be short of food for some years after the war. Devastated Europe constitutes a reservoir of disease which may well spill over and threaten the health of these islands. The incidence of tuberculosis and venereal disease is still rising. Further, when our main Forces are engaged on the Continent the resultant heavy casualties will leave a heavy burden of chronic traumatic conditions.

It is idle under these circumstances to belittle the importance of the curative services. If the doctor has at his disposal all the resources of modern medical science there are a few diseases which he can actually cure, there are many patients whose condition he can improve, and few who cannot be given a little help, even if it is only a little elementary psychotherapy. Dr. Leak's poor opinion of the capabilities of the doctor is surely an indictment of medical practice as at present constituted.

The populace may be ill informed on the finer points of medical science, but they are well informed as to the difficulties of getting adequate medical treatment to-day. They are all ex-patients or potential patients. If doctors when ill were compelled to seek treatment on the same terms as their patients they would lead the "ill-instructed clamour" for reform which Dr. Leak condemns.—I am, etc.,

St. Mary Cray, Kent. BRIAN H. KIRMAN.

The Future Health Services

SIR,—Dr. J. Shackleton Bailey's letter (Aug. 7, p. 181) makes sad reading because it betrays, so obviously sincerely and with such placid and complacent politico-acquiescence, a state of mind which views without the slightest disturbance, indeed with an almost gleeful anticipation, the possibility of an immediate upheaval which cannot but result in the permanent and disastrous lowering of the status of our profession. "Immediate," because he says that both "inside and outside of the House of Commons there is a highly critical consensus of opinion impatiently waiting for action." Medicine is by far the most "learned" profession in the world as practised even by the average doctor. The lawyer deals in printed word, in precedent, in tomes replete with ancient legal pronouncements and decisions, in argument; the clergyman in Holy Writ and the lessons to be drawn from it, in sermons and exhortations, in hymns and prayers and psalms. But the doctor cannot get away with either knowledge of books and power of clever and convincing argument or with profound knowledge of the Bible and a capacity to influence men's souls for good. After six years of the most exacting scientific study demanded of any profession, he has to graft on to this a far more profound knowledge of, and insight into, humanity, both bodily and mental, than is called for in any other calling, or trade for that matter.

So far as I have been able to gather in conversation and correspondence, certainly not less than 95% of my colleagues, fairly representative of the profession as a whole, totally disagree with the attitude of the politico-acquiescents as defined by Dr. Shackleton Bailey. It is impossible to dragoon such a highly specialized and individualistic body into turning themselves into a Government Department such as the Post Office, or one with the routine-bound, clock-watching, tea-drinking proclivities of Whitehall. Of all human activities medicine is the one that it is most important to keep free of all except the minimum of political and Government interference. Far from being "the strongest trade union in the world," as someone has quite erroneously stated, doctors are equipped neither psychologically nor occupationally for mass combination and resistance, and if on a vote-catching campaign any Government tries and succeeds in establishing the impossible—i.e., the regimentation adumbrated by your correspondent —then the entire status of the profession will infallibly be lowered because a different type of person will begin to enter it. Indeed, it may well happen that the supply of students will fall perilously low if a Government appointment, with accompanying loss of initiative, freedom, and incentive to study, is all they have to look forward to after six years of intensive study punctuated every few months by formidable examinational hurdles to be leaped.

Dr. Bailey deprecates "delay pending demobilization." It is difficult to conceive why. The older or unfit civilian doctors are too busy to combine, arm, and resist political cajolement and pressure. The younger fit men in the Services have not the chance. It is manifestly unfair, though it may be good "policy," for Parliament to charge in with their tanks at the weakest spot at this juncture, with half the profession absent and unconsulted, and the other half unholidayed and unsung, trying their utmost to keep the medical home-front fires burning.

I note that Dr. Shackleton Bailey is, like myself, a (Government) Factory Act surgeon. He therefore has to fill up a form showing that he has carried out the following examination of each young person joining a factory: "Any previous employment (Name of Employer and Character of Employment), Name and Address of Health Insurance Practitioner, Address of last School, Medical History and Information obtained from School Medical Record, Bodily Development and Nutrition, Height, Weight, Skin and Hair, Eyes and Eyelids (Right, Left, for vision), Mouth and Teeth, Nose, Throat, Ears, Glands, Respiratory System, Circulatory System, Nervous System, Bones and Joints, Other Observations"—and sign it. The capital letters are all the Government's, and the fee for this detailed overhaul, which, except for urine examination and blood pressure, practically amounts to a life insurance requirement, is 2s. 6d. This is a sample of Governmental valuation of our professional services now, and with a vivid recollection of the happenings of 1912 in mind I have no reason whatever to suppose that this valuation will not permeate any State service that is instituted in the future. The tragedy of it is (and it is difficult to understand why the "reformers" do not visualize this) that if it is pushed through, it will be the public, and not the pigeon-holed doctors, cribbed, cabined, and confined, who will be the first to complain. But then it will be too late.—I am, etc.,

Stowmarket. H. S. GASKELL.

Plant Hormones

SIR,—The annotation on plant hormones (Aug. 7, p. 175) states that plant hormones are "particularly active in stimulating root growth." As it stands this is misleading. The auxins, as Went[1] and many other workers have demonstrated, may promote growth in one part of the plant and inhibit it in another. Prof. Kögl and his collaborators,[2] who first isolated indole-3-acetic acid from urine, actually demonstrated the inhibitory effect on the growth in length of Avena roots when they were immersed in solutions of indole-3-acetic acid and auxins "a" and "b." Writing on the inhibition of root growth by auxins Bonner and Koepfli[3] compare the growth-inhibiting activity of twenty-one analogues of indole-3-acetic

acid, and regard the chemical specificity of auxin for root growth as closely similar to the chemical specificity for shoot growth, some substances being highly active in promoting growth in shoots and inhibiting roots.

In experiments which I have carried out with seedlings this opposite effect of auxin on the growth of root and shoot is clearly demonstrated. Application of auxin may cause swelling on stem or root. It may stimulate cell division and initiate the growth of adventitious roots on stem cuttings. It also inhibits the growth of lateral buds when applied to the main stem. Thus, to quote Went,[4] "one substance may be promoting growth in one part of the plant and inhibiting it in another."—I am, etc.,

Reading. E. DOROTHY BRAIN, F.L.S.

REFERENCES

1 *Phytohormones*, New York, 1937.
2 *Z. physiol. Chem.*, 1934, **228**, No. 1, 104.
3 *Amer. J. Bot.*, 1939, **26**, 557.
4 Ibid., p. 505.

Simmonds's Cachexia

SIR,—I am in the midst of some research work on a rare endocrinological syndrome—namely, Simmonds's cachexia—and should be extremely obliged to hear from any doctor in regard to a patient suffering from this disorder who is willing to come into hospital for two or three weeks for investigation and treatment.

I would not venture to presume upon the hospitality of your correspondence columns were not the disorder of such comparative rarity.—I am, etc.,

London, W.1. S. L. SIMPSON.

National Health Insurance and Assumption B

SIR,—National Health Insurance at its inception in 1911 represented a great contribution to the social services of this country, placing a medical service at the disposal of sections of the community which found difficulty in obtaining it themselves. Few will question this statement, but does N.H.I. provide a framework into which the medical services of the future can be fitted? Has the time not come when N.H.I. organizational forms represent a brake on progress rather than a spur thereto?

Consideration of this question is very important at the moment, especially in view of Recommendation M of the Council of the B.M.A. (*Supplement*, Aug. 7, p. 20), which suggests that implementation of Beveridge's Assumption B would, for the moment, be met by a two-way extension of N.H.I. The following points may help in considering these questions.

(*a*) N.H.I. is based on the individual practitioner with his own professional equipment, accommodation, etc. (This statement is not, in general, invalidated by the development of partnerships.) It is impossible within its forms to develop that co-operative team work which is demanded by the increasing technical complexity of medicine and its allied services.

(*b*) N.H.I. tends to degrade the general practitioner into a mere sifter of cases, unable to devote a sufficient time to their consideration because of the numbers to be seen under the conditions it imposes. As he has to provide a 24-hour service, seven days a week, with little possibility of any private or social life outside his professional work, his chances of putting into practice those clinical ideals he had on leaving his medical school are slight indeed. Preventive medicine and research work in his own sphere of activity are closed to him. His growth to that full clinical stature and position which are rightly his because of the importance of his position *vis-à-vis* his patient is inhibited by his working conditions. To say so is in no sense to criticize the body of insurance practitioners, which gives loyal and devoted service; it is to criticize the system under which these doctors work.

(*c*) A two-way extension of N.H.I. cannot solve any of these problems. On the contrary, it will aggravate them and at the same time strengthen the position of the approved societies, with consequent economic loss to patient, doctor, and national health. What the public needs is a health service maintained by a completely unified profession, operating as a single instrument to bring every aspect of scientific medicine within the reach of every member of the community. The profession on its side needs an organization that will enable its members to produce their best clinical work in the best conditions—good income, reasonable hours of work, holidays, pensions, modern professional accommodation, adequate equipment, lay assistance that will relieve practitioners of non-clinical work, and the possibility of living "privately."

(*d*) To extend and develop N.H.I. is to push further away into the distant future these desirable and necessary improvements. That will be the result of carrying Recommendation M, which represents a "slipping back" from the decisions on group practice made at last year's Annual Representative Meeting, and a definite retreat from Assumption B.—We are, etc.,

H. C. BOYDE, H. JOULES,
D. S. BRYAN-BROWN, R. POOTS,
L. FIELDMAN, J. POWELL-EVANS,
W. W. FOX. J. A. SCOTT,
H. GAINSBOROUGH, S. SMITH,
P. D'ARCY HART, B. C. THOMPSON.
P. INWALD,

The Doctor with a Cold

SIR,—Whatever scheme may be evolved for the betterment of the medical services of the country, it must not be forgotten that it will depend for its success entirely on the good will of the doctors, especially for the next ten to fifteen years.

Now, according to the Press, in the years before the war workers were advised, at the onset of influenza or febrile cold, to stop work and go to bed, and further reports of the large percentages of absentees showed that the advice was taken. Doctors, it also said, were working all hours of the day and night. A matter not brought to prominence was that many of the doctors were suffering likewise, and should also have been in bed. It will cause a sense of grievance if doctors, as modified or wholly civil servants, are supposed to be the only workers not allowed to go sick. Such sickness takes place mostly at one period of the year, and simultaneously over the country, and means that a very large pool of doctors must be built up to carry on the normal services. At present and for many years this will be impossible, and unless the doctor behaves as he has always done, and works on while others go to bed, the whole scheme will fail.

This fact, if stressed, may modify the increasingly dictatorial attitude of the Ministry of Health, either by force or, preferably, by a realization of the debt owed to doctors, and that if their work in helping to tide over a very difficult transition period is to be free of all grievance, adequate pay and privileges must be given them.—I am, etc.,

Hove. FRANK PORTAS, M.D.

Appeal for Back Numbers

SIR,—There must be many who are responding to the appeal for back numbers of the *Journal*, and I am going to suggest that they should do what I have already arranged for in my own case—namely, ask that the postage fees (which are offered to be refunded) should be allowed to accumulate until the end of the financial year and then handed over to the Central Charities Fund.

Few or none would miss the 6d. or 9d. paid for postage occasionally, but these small sums, multiplied many times over, would mean a quite appreciable addition to our Charities Fund at the end of a year.

May I commend the idea to my fellow-members.—I am, etc.,

Stokesby, Gt. Yarmouth. PERCY B. SPURGIN.

According to the statistics of the health authorities (*Nationaltidende*, July 11, 1943), the mortality rate in Denmark for 1942 was 9.6%. In that year there were 2,200 fewer deaths than in 1941. Infant mortality and mortality of elderly people have decreased. Infant mortality was 4.7% as against 5.5% in 1941. The age groups between 17 and 45 have an increased mortality. Deaths from infectious diseases and from pneumonia have greatly decreased. This is attributed to sulphonamide therapy. There is an increase in cancer deaths, especially in women. There has also been an increase in the number of murders (36 in 1942).

Obituary

SIR FRANCIS FREMANTLE, M.P., D.M., M.Ch., F.R.C.P., F.R.C.S.

The medical men in Parliament who were returned after each of the half-dozen general elections between the two wars formed a varying group, in numbers (ranging from ten to twenty), in political affinities, and in the interest they took in medico-political affairs. But there was among them all the time one constantly dependable figure, Sir Francis Fremantle, whose death on Aug. 26 we chronicle with great regret. From 1919 onwards he was the most thorough example of "The Doctor in Parliament," to quote the title of a lecture he once gave under the Chadwick Trust, always diligent and interested, with a high conception of the function of the medical man in the shaping of legislation and criticism of administration. No one recognized more fully that the first responsibility of the medical man in Parliament is to his constituents, not to his profession, but subject to this he was ready to respond to any call made upon him to assist public health and the causes which the medical profession had at heart. He took his Parliamentary duties, like everything else, with great seriousness. Having already had a career in public health before he entered Parliament he felt himself, as indeed he was, well qualified to speak on public health subjects, and in the chair of the Parliamentary Medical Committee, which he first occupied in 1922, and continued to hold save during the period of the Labour Governments—when a Labour chairman was elected—it was his task to interpret medical views to Parliament, and, what was equally important and perhaps still more difficult, to interpret Parliamentary procedure and party exigency to the medical profession. The British Medical Association, in common with a number of other bodies concerned with the health of the community, often had occasion to thank Sir Francis Fremantle for his work on their behalf in voicing in the Legislature the new outlook in medicine and sponsoring and supporting measures which the medical profession desired to see placed on the statute book, not to speak of such services as asking questions in the House or introducing deputations to Ministers.

Francis Edward Fremantle came of a family whose name is distinguished in naval annals. His great-grandfather, Francis Fremantle, commanded the *Neptune*, the second ship behind the *Victory* at Trafalgar. His grandfather, another Francis, was at one time Secretary for War, and lived to become "the father of the House of Lords" and the patriarch of Buckinghamshire society. His father, however, the Very Rev. and Hon. W. H. Fremantle, chose the Church, and eventually became a well-known Dean of Ripon. Francis was born on May 29, 1872. In 1886 he entered Eton as King's Scholar, where he remained for four years, and then went to Balliol College, Oxford, from 1891 to 1894, where he gained a reputation in athletics. In 1895 he began his medical training at Guy's Hospital, qualifying M.B., Ch.B. in 1898. In 1903 he became M.Ch. and Fellow of the Royal College of Surgeons, in 1910 Fellow of the Royal College of Physicians, and in 1928 took the D.M. of Oxford.

After holding a house-physicianship at Guy's he went out to the South African War as a civil surgeon with the field Force, afterwards collecting his military experiences in a book of nearly 600 pages entitled *A Doctor in Khaki*. On his return he served as assistant secretary to a War Office committee for the reorganization of the Army Medical Service. In 1902, in which year he took the D.P.H., he was appointed county medical officer for Hertfordshire, a county with which his career, professional and Parliamentary, was henceforth to be closely bound. Through his mother he eventually inherited the seat at Bedwell Park, near Hatfield. Before he had really got into the saddle as county medical officer he was sent, in 1903, to the Punjab as plague medical officer, acquiring some very useful experience, and afterwards, in 1903-4, he acted as special correspondent for the *Lancet* in the Russo-Japanese War. In the war of 1914-18 Fremantle served as D.A.D.M.S. (Sanitary) in Mesopotamia, and he also saw service in Gallipoli and Egypt, and was mentioned in dispatches, retiring with the rank of lieutenant-colonel R.A.M.C. On his return he devoted himself to public affairs. He had relinquished in 1916 his post of county medical officer, though he continued to serve in an honorary consultant capacity. In 1919 he was elected to the London County Council and served for three years, being for part of the time chairman of the Housing Committee. In the same year he entered Parliament as a Conservative for the St. Albans Division, and retained the seat with very large majorities. Although always on good terms with his party, he was not a strong party man, and once he declared that dogma—meaning presumably political dogma—is of the devil, and that the solution of problems comes not by the application of rigid theory but by experience.

In everything that had to do with public health, especially on the side of housing, Francis Fremantle was prominent. In 1920-1 he became president of the Society of Medical Officers of Health. In 1923 he served on Lord Trevethin's Committee on Venereal Diseases. He was a fellow and vice-president of the Royal Sanitary Institute, to whose congresses he contributed many papers, and past-president of the Section of Epidemiology and State Medicine of the Royal Society of Medicine. In 1930 he was appointed a member of the Industrial Health Research Board. In 1922, and again in 1930, he served on the Rent Act Committee to advise the Government on the future of the Rent Restriction Act. He attached himself enthusiastically to the garden city movement, was chairman of council of the Garden Cities and Town Planning Association, and director of the Welwyn Garden City in his own county.

Although never closely identified with the central work of the B.M.A., he was always helpful on special committees. He was a member of the committee which prepared in 1924-5 the evidence to be given on behalf of the Association to the Royal Commission on the Insurance Acts. In 1922 at the Glasgow Meeting he was vice-president of the Section of Public Health, and in 1937 at Belfast vice-president of the Section of Medical Sociology. For some years he served on the Parliamentary Subcommittee and on the Central Emergency Committee. In 1938 he was one of four medical M.P.s who were specially invited to be present at the Annual Representative Meeting. In 1940 he was made a member of the Medical Planning Commission. His writings, in addition to *A Doctor in Khaki* already mentioned, included *Health and Empire*, published in 1911, and two books which were really companions, *The Housing of the Nation* and *The Health of the Nation*, both published in 1927, and both carrying a foreword by Mr. Neville Chamberlain—then Minister of Health. His *Health of the Nation* in particular was a most commendable work, and though not likely to have a popular appeal, it went into a second edition within a couple of years. In reply to one critic who said that the information it afforded on any one subject was better given in official publications, Fremantle said, "Precisely; this book is a bait." But that was too modest an appraisement. It was, and remains, a useful work, the more so because he approached the subject of public health not as a branch of science but as a branch of civics.

In 1926 Fremantle was appointed Deputy Lieutenant for the County of Hertford, and in 1932 he received the honour of knighthood. He had been appointed O.B.E. in the Birthday Honours of 1919.

A. I. SIMEY, M.D., F.R.C.P.

Dr. A. I. Simey, who died at Fordingbridge on Aug. 20, was for 22 years medical officer to Rugby School, succeeding Dr. Clement Dukes, who had held that post for 37 years. Athelstane Iliff Simey was born at Sunderland in 1873 the son of Ralph Simey, J.P., D.L. He went to Rugby in 1886, where he won a classical scholarship, and entered King's

College, Cambridge, with a classical scholarship in 1892; in 1895 he was placed in the first class of the Classical Tripos. After two further years at Cambridge as a natural science student he went to the London Hospital for his clinical course and qualified M.R.C.S., L.R.C.P. in 1901. He took the M.B., B.Ch. degrees in 1902 and the M.A. and M.D. in 1905, after serving as house-physician, house-surgeon, and medical registrar at the London Hospital. In 1906 he obtained the M.R.C.P. and for a short period was physician to out-patients at the Victoria Park Hospital for Diseases of the Chest. Then in 1908 he was appointed medical officer to his old school and went to live at Rugby. During the last war Simey held a temporary commission in the R.A.M.C. as M.O. to the Officers' Hospital at Le Havre. Apart from his duties at Rugby School he worked for many years on the staff of the Hospital of St. Cross as physician and medical officer in charge of the *x*-ray and skin departments. He joined the B.M.A. in 1910 and was a member of the Association of Physicians of Great Britain and Ireland. His election as F.R.C.P. came in 1925. Like his famous predecessor, Clement Dukes, Simey was a recognized authority on health at boarding schools, and wrote on the hygiene of adolescent boys, and on the medical supervision of camps, sports, and exercise. His hobby was natural history, and in particular botany and entomology.

R. H. writes:

I first met Simey at the London Hospital in 1900. He had then just come down from Cambridge, where he had taken a first in the Classical Tripos, and was now embarking with enthusiasm on the clinical course. I was early impressed not only by his intellectual ability but by the sincerity and modesty of his character, and our relation as teacher and pupil (we were almost of an age) soon grew into one of close friendship which lasted for life. After qualification he held some resident posts at the London, increasing both the general esteem in which he was held and his affection for the hospital and everyone connected with it. Soon afterwards he was appointed medical officer to his old school—Rugby—of which he was a devoted son. He carried out his duties there with the thoroughness and high conscientiousness which characterized all he did, and became recognized as a leading authority on the diseases of school life. On resigning his post at Rugby he went to Exeter as physician to the Royal Devon and Exeter Hospital, engaging also in consulting practice in the West Country. But it was not many years before he was struck down with sudden illness, and for the rest of his life he was more or less incapacitated. He spent it partly in the New Forest, to which he had been attracted by its facilities for his hobby of bird-study, and partly in his cottage in Cumberland, bearing his enforced inactivity with exemplary courage and cheerfulness, and supported by the devoted care of his wife. The end came quite peacefully. He died at dawn, and his last words were: "How wonderful! I do love the light"—for the beauties of Nature meant much to him always. He has left little record of his long experience as a school doctor, for although he had accumulated a mass of clinical data his high standard of accuracy and scientific scrupulousness made him reluctant to publish; but those who were privileged to know him intimately will always cherish his memory as that of a great gentleman and one who exemplified in all he did the highest standards of our profession.

J. C. M. writes:

It is only for a few recent years that I have had the privilege of knowing Dr. Simey and visiting him at his home on the edge of the New Forest, overlooking the valley of the Hampshire Avon. The thatched roof of his home is in keeping with its old-world cottage garden, which is at the same time a veritable museum of rare and interesting ferns, flowers, and shrubs which he collected and tended over many years; it is also a miniature sanctuary for the birds which Simey knew and loved so well. Dr. and Mrs. Simey had a genius for friendship, which had a fragrance that will endure in the hearts of all who enjoyed it. This was a feature of Simey's 22 years at Rugby School. I am told by one who knows that the boys loved him and welcomed admission to the "San" for the sheer joy of contact with him. He was indeed a "gentle doctor" and a gentle man.

CECIL PRICE-JONES, M.B.

We regret to announce the death on Aug. 27 of Dr. Cecil Price-Jones, the haematologist whose work on the size of blood cells made his name known in every civilized country.

He was born in 1863 son of Dr. William Price-Jones of Surbiton, whose practice he carried on for a time after graduating M.B.Lond. in 1889 from Guy's Hospital, where he won the Preliminary Science Exhibition in 1884 and was assistant to the bacteriologist. For some years he was M.O.H. under the Kingston-on-Thames rural sanitary authority, but his real bent was for research, and he devoted himself more and more to haemocytology. He won a Salters' Company scholarship in 1911 and was appointed assistant pathologist to the Middlesex Hospital Cancer Research Laboratory. Much of his later work was done at University College Hospital Medical School, where he was appointed Sidney Ringer lecturer in 1936. Price-Jones's classical work on sizes of blood cells received early encouragement from the British Medical Association, the Council making him two scientific grants—in 1909 and 1910. He had joined the B.M.A. in 1900 and was a member of the Pathological Society of Great Britain. During the last war he served with the British Expeditionary Force as a temporary captain in the R.A.M.C.

Cecil Price-Jones's *Blood Pictures*, first published in 1917, was a brief and clearly written introduction to clinical haematology, beginning with the technique of haemocytology and the normal blood picture and following with an account of the use of blood counts in the diagnosis of disease. In a small space it gave the maximum amount of information, and was accompanied by five admirable coloured plates, the whole providing an excellent guide to house-physicians and clinical clerks. A second edition was called for in 1920, and a third edition in 1933 brought the handbook up to date. The chapter on the measurement of the size of the red blood cells was illustrated by the graphic curves with which the author's name is rightly associated. He also contributed papers on his special subject to the *Journal of Pathology and Bacteriology*, and published in 1933 a monograph, *Red Blood Cell Diameters*, which gave a lucid account of long-continued and mathematically controlled work by himself and a review of the results obtained by others. Price-Jones had a concise way of writing, and for a number of years he gave valued help to this *Journal* by reviewing books on haematology.

To his friends Cecil Price-Jones was known as a connoisseur of life, with a dry humour all his own. He was a gifted musician and had much skill with brush and pencil. In his country home at Radlett, well named "The Apple Orchard," he cultivated his garden and cared for the fruit trees and their crop.

JOHN MURRAY, F.R.C.S.

An old house-surgeon of Mr. John Murray's, the first to serve for him when he became senior surgeon to Middlesex Hospital shortly after the last war, sends the following tribute as a supplement to that already paid him in the obituary notice which appeared in the *Journal* of Aug. 28.

John Murray had a strong personality and a conservative but essentially sound outlook, founded on a wealth of clinical experience. He had, in addition, a keen sense of humour, and a merry twinkle would appear in his eye when he gave his opinion, usually iconoclastic, on some new-fangled and often ill-established procedure. "Oh, I say, I say!" he was wont to remark. "You might as well stick a postage stamp on the sole of the foot." He was opposed to operation in acute pancreatitis, many cases of which he had seen, and when, occasionally to the astonishment of his colleagues, recovery took place following masterly inactivity he would remark with a smile, "Another triumph of conservatism!" His hobbies were billiards and Freemasonry, and he achieved distinction in both, making breaks of over a century in the one, even against crack players, and reaching Grand rank and winning many honours in the other. He liked to compare operative surgery to the playing of billiards, remarking that to be adept at either you needed to be constantly practising it. Mr. Murray did not seek and, in fact, sometimes went out of his way to avoid private practice, but nothing was too much trouble for him with his hospital patients, and he would come round to Middlesex at any time of the day or night to do something for any one of them. He loved to have a dig at a friend, and I well remember how one day he was chuckling in high glee because he had said to a gynaecologist

whom he met on the way to the hospital, "You do glands in the neck, don't you?" and the gynaecologist had replied, "Oh, you heard about that case, did you?" As a member of the Court of Examiners he became known to many candidates. One day on returning from examining for the Fellowship he told how a candidate had flourished his knife about in the operative test. "You won't stick me, will you?" said Mr. Murray. "No, sir," said the astute candidate, "I remember last time." "What do you mean?" he was asked. "Well, sir," he replied, "last time you stuck me!" "I had to let him through," said his bluff but kind-hearted examiner, and added, "He knew his work." Passing this candidate seemed to give him especial pleasure, and perhaps this story best describes the man he was. Strong, perhaps rather bluff, no nonsense and straight as a gun barrel, he was a chief whom it was a privilege to serve. His high sense of professional integrity and kindliness, even if somewhat hidden behind a rather severe and dignified exterior, will cause him to be long remembered with affection by Middlesex men.

The death took place at a nursing home on Aug. 7 of Dr. J. J. R. BINNIE of 21, Walker Street, Edinburgh. John James Rouse Binnie qualified M.B., Ch.B.Ed. in 1919, proceeding to the M.D. in 1921. In 1920 he took his D.P.H. after holding the post of medical superintendent of Lightburn Hospital, Shettleston, Glasgow. For a time he was in general practice in Mid-Calder. Later he returned to Edinburgh as consulting radiologist in succession to the late Dr. Hope Fowler, and in this capacity was attached to Gogarburn and Craiglockhart E.M.S. Hospital. Dr. Binnie held the rank of major in the last war, and also served in the present one until he was released owing to ill-health. In spite of this he continued to do good work for the Emergency Medical Service.

The death of Dr. H. CHISHOLM WILL, which occurred on Aug. 11, will cause great regret among his many friends in Bromley, Kent. Dr. Will served in the R.A.M.C. in France and Gallipoli from 1915 to 1918, and then settled in practice in Bromley, where he has practised for nearly 25 years. He was closely associated with the Bromley Congregational Church, of which he was a deacon for 21 years. He took an active interest in Congregational churches generally, and was a member of the executive of the London Congregational Union, a member of the executive of the Kent Congregational Association, and a delegate of the Bromley Church to the Congregational Union of England and Wales. He took a special interest also in the work of the London Missionary Society and of the Bromley Crusaders. Dr. Will, who qualified in 1893, was closely associated with the activities of the British Medical Association, which he joined in 1900. He was secretary of the Bromley Division for ten years (1922-32), and chairman from 1939 to 1941. On many occasions he acted as representative on the Representative Body, and even after the onset of his illness he attended meetings of the Association whenever he was able to do so.

The death has occurred in a Glasgow nursing home of Dr. JOHN AITKEN, aged 67. A native of Glasgow, John Aitken was educated at Garnethill School and Glasgow University, where he graduated M.B., Ch.B. in 1898 and M.D. in 1901, taking both with commendation. After a period as resident in the Western Infirmary and Royal Maternity Hospital he joined the Scottish Red Cross Hospital in the South African War as assistant physician, being mentioned in dispatches. Thereafter he succeeded the late Dr. Prentice in Kilmarnock, eventually becoming, to his undisguised satisfaction, physician to the Kilmarnock Infirmary. Here he practised for a quarter of a century, with an interlude when he was a medical officer to the 52nd Division in Palestine in the last war. Following a breakdown in health he sought the sunny shores of the Mediterranean and built up a practice among the British colony at Alassio, returning to this country in 1940. Maintaining throughout a busy life an interest in the science of medicine, especially his first love, physiology, he was an early worker in haematology, among his publications being papers on pernicious anaemia and haematuria. Apart from service in the Territorials he had few outside interests, but acquired a taste for gardening, characteristically specializing in the viola, the touchstone of the Ayrshire amateur. He was a member of the B.M.A. and of the local panel committee, attending an occasional Panel Conference. He is survived by his widow, a daughter, and a son, a member of his own profession, at present on service in India. Of a sanguine temperament, buoyant and debonair, Aitken was ever a stimulus to his friends and quickly made his presence felt in any assemblage; but he will be remembered best for his exuberant spirit and alertness of mind and body, despite years of ill-health.

By the death of Col. Sir GEORGE HASTINGS, V.D., M.R.C.S., L.R.C.P., at the age of 90, the profession loses a personality of Victorian days the like of whom, it is safe to say, will not be seen again. To call him a Dickensian character, writes an old friend, might be very slightly to overstate the case, but at least he might have stepped from the pages of Mr. Sadler's *Fanny by Gaslight* or from a "conversation piece" canvas by his father-in-law, W. P. Frith. He reached the long-obsolete rank of surgeon colonel in the old Middlesex Yeomanry Cavalry—itself a designation abandoned before the present century began—but was best known as the presiding genius, indeed dictator in all but the name, of the Ranelagh Club, where he was chairman for forty years. He was also president of the Coaching Club, of which he was the senior member. From all this it will be gathered that he was a horse-lover; certainly he dressed for the part—sponge-bag trousers, glossy top-hat, wash-leather gloves, large cravat, immaculate frock coat—and on the right occasions the correct black-banded grey "topper," as recorded in the *Times* recently. He was a West-End "society" practitioner of very long standing; and was also consultant to the Gas Light and Coke Company. He had his medical education at St. Bartholomew's Hospital, qualified M.R.C.S., L.R.C.P. in 1875, and served his own hospital as house-physician. He was the son of George Hastings of Terrington, Norfolk, and married Alice, daughter of Mr. W. P. Frith, R.A., by whom he had two daughters. He was knighted in 1910, was a Knight of Grace of the Order of St. John of Jerusalem, and held the Volunteer Decoration for his long service with the Yeomanry. Of late years he lived in the Albany, exactly his right *milieu*.

The following well-known medical men have died abroad: Dr. EDWARD JACKSON, formerly professor of ophthalmology in the University of Colorado, and consulting editor of the *American Journal of Ophthalmology*, aged 86; Dr. FRANK W. MARLOW, professor of ophthalmology for forty years at Syracuse University and member of the Ophthalmological Society of the United Kingdom, aged 84; Dr. LUTHER CROUSE PETER, emeritus professor of ophthalmology in the University of Pennsylvania, aged 73; Dr. GUSTAF NEANDER, pioneer in the campaign against tuberculosis in Sweden, aged 68; and Prof. EMILE SERGENT of Paris, the eminent authority on tuberculosis, aged 76.

Universities and Colleges

UNIVERSITY OF LONDON

The title of Reader in Medicine in the University of London, with the status and designation of appointed teacher, has been conferred on Dr. Clifford Wilson in respect of the post held by him at the London Hospital Medical College.

The reduction in the clinical course for the M.B., B.S. degrees will remain in force during the season 1943-4. The additional M.B., B.S. examination to be held in 1944 will begin on Monday, Jan. 31.

The Services

CASUALTIES IN THE MEDICAL SERVICES

Prisoners of War.—War Subs. Capt. H. D. T. Gawn, R.A.M.C., Temp. Lieut.-Col. L. R. S. Macfarlane, R.A.M.C., War Subs. Capt. E. Snell, R.A.M.C.

Wounded.—War Subs. Capt. J. S. Montgomerie, R.A.M.C.

DEATHS IN THE SERVICES

It is now announced that Dr. JAMES RAWDON SODDY, aged 24, previously reported as missing, lost his life at sea by enemy action in July last. He qualified M.R.C.S., L.R.C.P. in 1942 from St. Thomas's Hospital and held house appointments at the Royal Portsmouth Hospital and the Lambeth Hospital. At the time of his death he was on the way to take up an appointment in the Colonial Medical Service in Nigeria.

Dr. VICTOR VARTAN MUIR of the Colonial Medical Service, Nigeria, is reported to have lost his life at sea in July as the result of enemy action. He graduated M.B., Ch.B. of Edinburgh University in 1939 and took the D.T.M.&H. a year later. His father is Dr. Ernest Muir, C.I.E., medical secretary of the British Empire Leprosy Relief Association and at present head of the Leprosarium in Trinidad.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* during the week a rise was reported in notifications of whooping-cough 160, dysentery 49, and diphtheria 36, while there was a fall in those for measles 427, scarlet fever 42, and acute pneumonia 34. The increase in the figure for whooping-cough was due to a general rise throughout Yorks West Riding, 139 cases.

The fall in the number of cases of measles was most pronounced in the counties of Essex, Suffolk, and Norfolk, where the decreases were 51, 63, and 45 respectively. The incidence of this disease was highest in Kent 110, Lancashire 72, and London 53.

Relatively big increases in the number of cases of dysentery have been reported for the last three weeks, and the week's figure of 198 cases is the highest for almost a year. An outstanding feature is the 57 cases in Yorks West Riding, the chief outbreaks being in Wakefield C.B. 18, in Knaresborough U.D. 14, and in Wharfedale R.D. 15. Outbreaks occurred also in Kent, Malling R.D., 11; Wiltshire, Westbury U.D., 9; Suffolk, Debin R.D., 8; Hertfordshire, Watford M.B. (in the local isolation hospital), 8. There were 19 cases in London and 17 in Lancashire (Liverpool C.B. 10).

In *Scotland* there were 33 more cases of whooping-cough, but 11 fewer cases of dysentery, than in the preceding week. The incidence of dysentery is still high (89 cases), the chief centres being the cities of Aberdeen 20 and Glasgow 16, while Kincardine County had 12 cases.

In *Northern Ireland* further cases of typhoid were reported from the outbreak in Belfast; 14 diagnosed and 7 suspected cases are now in hospital.

The Week Ending August 28

The returns of infectious diseases in England and Wales during the week included: scarlet fever 1,890, whooping-cough 1,915, diphtheria 614, measles 986, acute pneumonia 337, cerebrospinal fever 48, dysentery 129, paratyphoid 7, typhoid 16.

Registrar-General's Quarterly Returns for Scotland

The chief feature of the returns for the second quarter of 1943 was the high birth rate of 20.4 per 1,000 of the population; this was the highest rate recorded in any June quarter since 1930. The infant mortality of 58 per 1,000 live births was 10 below the average of the five preceding second quarters. The number of stillbirths was equivalent to a rate of 34 per 1,000 total births. The maternal mortality of 3.5 per 1,000 total births was the lowest for any second quarter since 1931. A general death rate of 12.7 per 1,000 was recorded, this being 0.5 below the average of the five preceding June quarters. The death rate from all forms of tuberculosis was 66. Deaths from the principal epidemic diseases numbered 48 more than in the second quarter of 1942, but the rate (24 per 100,000 of the population) was 11 below the average of the second quarters of 1938-42. The diseases responsible for the largest number of deaths were: whooping-cough 77, influenza 73, diphtheria 51, cerebrospinal fever 44, and measles 41. Road accidents caused 182 deaths, 102 fewer than in the previous quarter. The marriage rate has almost returned to pre-war level, being 7.8 per 1,000, which is 2.0 below that for the corresponding quarter of 1942.

Paratyphoid in Schleswig-Holstein

A severe epidemic of paratyphoid broke out recently in the district of Husum in Schleswig-Holstein. The health authorities there issued a statement on the precautions to be taken by the local population as follows: (1) Milk should be quickly boiled and rapidly cooled. (2) Water from springs and ditches should be drunk only when boiled for tea or coffee. (3) Fruit and raw vegetables should be thoroughly washed with mains water or with boiled water. (4) After using the w.c. thoroughly wash the hands. (5) Always wash the hands before eating, including the breakfast meal. (6) Stop unnecessary shaking of hands. (7) Publicans must thoroughly wash glasses in running mains water or in boiled underground water which must be changed several times a day. (8) Ice firms must use only mains water or boiled spring water for making ice. (9) Human excreta must not be used for manure for the period of a year. It must be limed and composted in ditches at least 10 metres from the nearest spring. It can then be used on the land before winter without harmful consequences. (10) Infected persons and suspects must see a doctor. Inoculated persons take the disease in a mild form which resembles influenza. (11) The isolation of infected cases and suspects in hospital is a police order. (12) Disinfection of the patient's room must be carried out immediately after entry into hospital.

No. 33

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended August 21.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	38	5	23	1	1	68	5	23	2	7
Deaths		—	1				—	4		
Diphtheria	527	29	141	61	24	629	29	184	37	16
Deaths	9	—	2	1	—	20	1	1	—	—
Dysentery	198	19	89	—	—	59	17	69		—
Deaths				—	—		—		—	—
Encephalitis lethargica, acute	3	—	—	—	—	7	—	4		—
Deaths		—					—			
Erysipelas			55	6	2			29	5	5
Deaths		—								
Infective enteritis or diarrhoea under 2 years				95					192	
Deaths	48	10	8	28	16	42	5	18	21	8
Measles	1,049	53	18	7	3	4,089	307	77	22	32
Deaths	1	1	—	—	1	3	—	4	—	—
Ophthalmia neonatorum	90	7	26	—	—	86	5	20	—	—
Deaths										
Paratyphoid fever	8	—	1		2	8	—	1	—	—
Deaths	—	—	—	—	—		—	—	—	—
Pneumonia, influenzal*			4	1	3	346	19	6	1	5
Deaths (from influenza)	9	3	1	—	1	7	—	—	1	—
Pneumonia, primary	312	16	122	12		—	—	91	10	
Deaths		12		7	3				6	3
Polio-encephalitis, acute	1	—				2	—			
Deaths		—								
Poliomyelitis, acute	16	1	—	1	—	19	—	1	2	—
Deaths		—					1			
Puerperal fever		1	17	—	—	—	5	24	2	—
Deaths							—			
Puerperal pyrexia†	157	9	12	2	5	172	12	27		2
Deaths		—								
Relapsing fever	—	—			—	—	—			—
Deaths		—					—			
Scarlet fever	1,516	131	221	48	55	1,332	108	272	32	20
Deaths	2	1	—	—	—	—	—	—	—	—
Small-pox	—	—	—		—	—	—	—		—
Deaths			—	—	—	—	—	—	—	—
Typhoid fever	13	2	2	15	14	15	5	4	8	3
Deaths	1	—	—	—	—			—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths			—	—	—			—	—	—
Whooping-cough	2,015	122	90	19	22	1,235	141	17	176	16
Deaths	12	—	5	1	2	11	—	1	3	1
Deaths (0-1 year)	326	39	56	56	39	315	32	62	35	29
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	3,741	525	545	186	136	3,639	545	532	180	122
Annual death rate (per 1,000 persons living)			12·3	12·2	‡			12·0	12·0	‡
Live births	5,889	703	886	370	245	6,118	721	838	382	285
Annual rate per 1,000 persons living			18·1	24·3	‡			17·3	25·5	‡
Stillbirths	193	14	36			201	20	28		
Rate per 1,000 total births (including stillborn)			39					32		

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes puerperal fever for England and Wales and Eire.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Medical News

Dr. C. H. Bateman, Medical Officer, Civil Defence First Aid Post Service, Essex, has been commended for brave conduct in Civil Defence.

A meeting will be held at the Charterhouse Rheumatism Clinic, 56, Weymouth Street, W., on Sept. 15, at 5.0 p.m., when there will be discussions on vitamin C in chronic rheumatism, and on an arthritic condition associated with partial scorbutic diet. The meeting is open to any member of the profession.

The National Association for the Prevention of Tuberculosis and Joint Tuberculosis Council has arranged a refresher course in the social side of tuberculosis work for almoners, social workers, and health visitors at the London School of Hygiene and Tropical Medicine, Keppel Street, Gower Street, London, W.C., on Thursday, Friday, and Saturday, Sept. 23, 24, and 25. The fee for the course is 10s. for three days or 5s. for one day. Early application should be made to Dr. Harley Williams, Tavistock House North, Tavistock Square, London, W.C.

A refresher course in tuberculosis for tuberculosis officers and medical practitioners will be held from Oct. 11 to Oct. 16 (Monday to Saturday inclusive) at the London School of Hygiene and Tropical Medicine, Keppel Street, W.C. This course, under the auspices of the National Association for the Prevention of Tuberculosis and the Joint Tuberculosis Council, is intended to give, in concentrated form, a complete review of the medical and social aspects of the disease. The number attending will be strictly limited to 50, but other courses will be arranged in London and elsewhere at later dates. The fee is 4 guineas for six days or 1 guinea for one day. Early application should be made to Dr. Harley Williams, Tavistock House North, Tavistock Square, W.C.1, from whom the syllabus of lectures and demonstrations can be had.

In the *Journal* of June 5 (p. 711) we published an appeal from a number of distinguished men and women, including the Archbishop of Canterbury, Lord Horder, and Sir Gowland Hopkins, for subscriptions towards the building of a new hospital in Stalingrad. The subscriptions from hospitals all over the country now amount to over £1,000 and, in addition, individual doctors have contributed over £600. But much more is wanted if the hospital is to be a fitting tribute to the Russian defence of Stalingrad. Cheques should be made payable to the Joint Committee for Soviet Aid, crossed "Stalingrad Hospital Fund," and sent to the Organizing Secretary of the Joint Committee, 171, St. Stephen's House, Westminster, London, S.W.1.

The Council of the British Association of Physical Medicine has elected the following officers of the Association for its first year: President and chairman of the Council, Lord Horder; hon. treasurer, Dr. M. B. Ray; hon. medical secretary, Dr. P. Bauwens; hon. general secretary, Sir Frank Fox. Other officers will be appointed when the membership of the Association has been extended. The Council approved 50 new members and consideration of other applicants was held over until its next meeting. Registered medical practitioners interested in physical medicine are invited to apply for membership. The address of the Association is 11, Chandos Street, London, W.1.

In the budget of the London County Council the amount to be voted for hospitals and medical services for 1943–4 is £6,482,735, an increase of £359,350 as compared with 1942–3. The increase is due mainly to cost-of-living additions and increased rates of pay for staff, the bringing into commission of additional beds, an estimated higher average bed occupation, and the continued rise in prices. In addition to the amount mentioned there will be an expenditure of £68,000 in 1943–4 in applying the Rushcliffe Committee's recommendations for increases in nurses' salaries.

During last year 12 institutions were approved by the Central Midwives Board—making 83 in all—for the purpose of giving instruction to midwives in the use of a recognized apparatus for nitrous oxide and air analgesia. The Board has asked the guidance of the Royal College of Obstetricians and Gynaecologists as to the need for persisting in the requirement that when a midwife gives gas-and-air analgesia on her own responsibility to a woman in labour a second person should be present. The reply of the College is to the effect that the presence of a second person is necessary in order to minimize the risk of infection, but the class of second persons allowed to be present is enlarged, and in addition to another midwife, a nurse, or a senior medical student may include a woman over 21 who has been for at least a year a V.A.D. or ordinary member of the British Red Cross Society or Order of St. John or a duly enrolled member of the Civil Nursing Reserve. The Board has also decided to take steps to compile a register of midwives qualified to administer analgesia.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE.

ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

Authors desiring REPRINTS should communicate with the Secretary of the Journal Board, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required as proofs are not sent abroad.

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TELEPHONE NO.—B.M.A. and *B.M.J.*: EUSTON 2111.

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B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

ANY QUESTIONS?

Glutamic Acid for Epilepsy

Q.—*A patient has sent me a cutting which quotes a report by Drs. Waelsch, Price, and Putnam of the New York Neurological Institute advocating treatment of petit mal by mixed laevo- and dextro-glutamic acid, given in the form of a hydrochloride, in capsules, the dosage being from 12 to 20 g. a day. They report diminution of attacks, together with increased mental and physical alertness. I should like to know whether this treatment has been tried in this country, and if the preparation in question is on the market.*

A.—Dr. Tracy Putnam has for many years encouraged investigations into the effect of different therapeutic agents in epilepsy, and work in his department was responsible for the successful applications of the hydantoins, of which epanutin is an example, to the treatment of convulsions. Treatment by glutamic acid is still in the experimental stage, and I have not heard of any controlled trial of it in this country. It should be readily available by special order from any of the large drug firms, but it might be well to delay its use in individual cases until its relative efficiency compared with bromides, phenobarbital, and the hydantoins has been established.

Anatomical Nomenclature

Q.—*Immediately after the last war I learned anatomy partly in "New Terminology" (Basle nomenclature) and, especially in the clinical years, also in the "Old Terminology." In reading articles, considering reports about patients and so on, I now find myself very confused. Has any standard terminology yet been agreed upon and universally accepted; and if so, can you recommend a suitable book in this terminology for a G.P. to use in brushing up his anatomy?*

A.—A standard English terminology was agreed in 1933 and was accepted by medical schools and publishers. It is a revised form of the "B.N.A." (*Basle Nomina Anatomica*). It was published as a separate report by the Anatomical Society of Great Britain and Ireland, after several years' work by a specially appointed committee, and is sometimes known as the "Birmingham Revision" or "B.R.," since it was finally approved at a meeting of the society in that city. This terminology was introduced into Johnson's *Synopsis of Regional Anatomy* in 1934, Cunningham's *Practical Anatomy* 1935, Buchanan and Cunningham's textbooks 1937, and *Gray's Anatomy* 1938. Most recent editions of anatomy books contain glossaries showing the more important changes from the "B.N.A." In most foreign countries the "B.N.A." is at present in use, often alongside some indigenous terminology. The "B.N.A." was a terminology agreed by an international committee shortly before the last war. It was intended to replace the various systems in use in different countries, and it gave an opportunity for reducing the number of synonyms which abounded, for example, in the so-called "Old Terminology" in English. It was anticipated that revision would be needed from time to time as new knowledge and experience made it advisable, but this has never been carried out on an international basis. New terms as they arise are frequently linked with some author's name for the sake of clearness in discussion, but it is an agreed policy that personal names should be replaced as soon as possible (as in the "B.N.A."). Confusion of terms in clinical literature arises from the employment by some writers of old names that have been superseded. It is desirable that writers and teachers should conform to the accepted standard terminology.

Adolescent Kyphosis

Q.—*A woman patient aged 30 had adolescent osteochondritis, as it is sometimes called. Though it caused no symptoms at the time, she now has three lower dorsal vertebrae semi-fixed, and x-ray examination shows the intervertebral bodies thinned, with some osteophytes on the bodies of the vertebrae. She has pain in the*

back, on stooping particularly, but also on walking or standing for more than an hour or so. Massage, sun-ray, and exercise have improved matters, but she wants to get to work, and often the ache prevents her from carrying on with her job. The present attack of pain was due to overwork on her job as cook in a day nursery. What is the prognosis? Any suggestions for treatment would be acceptable.

A.—The condition appears to be what is more commonly described as adolescent kyphosis and is due to the effects of strain, especially lifting or carrying weights, in adolescence, upon a spine weakened by developmental defects or by vertebral epiphysitis. The subject was discussed in the Orthopaedic Section at the Annual Meeting of the B.M.A. at Bournemouth in 1934, and two important papers read then were reported in the *Journal*: the first by Lambrinudi (*Journal*, Nov. 3, 1934, p. 800), and the second by Jacques Calvé (*Journal*, Dec. 1, 1934, p. 983). They supply an excellent review of the subject as to both aetiology and treatment. The ideal to be aimed at in treatment is to strengthen the spinal musculature by appropriate *active* exercises devised to develop a natural muscular "corset." A light spinal brace on the Goldthwait principle may be helpful until the muscles can be developed and trained for the purpose. No treatment is likely to reduce the kyphosis or alter the vertebral condition, but heat and massage, *if not overdone*, will give relief to the effects of strain. The condition is not likely to get any worse, though the further development of osteophytes—Nature's attempt to buttress the weakened structures—may lead to some lessening of spinal mobility.

Treatment of Syphilis

Q.—*Is there any hope of getting a complete cure with injectio bismuthi in a person suffering from secondary syphilitic ulcers? What would be the correct dosage, and frequency, of injections? Is there any preparation of arsenic which can be given either intramuscularly or intravenously which would not cause a reaction? I have a patient who after an intravenous injection of sulpharsphenamine has a severe reaction, with syncope, vomiting, pains in the limbs, etc. What treatment would be the best?*

A.—Yes! Injectio bismuthi should at any rate cause the disappearance of the lesions, though it may take a long while to reverse the serum reactions and bring about complete cure. The dosage—assuming the patient is a male of average weight—is 1 to 1.5 c.cm. (0.2 to 0.3 g. bismuth metal) once weekly given intramuscularly. A careful watch should be kept for gingivitis and also for albuminuria. These injections should be given in courses of ten, with intervals of four to five weeks between courses.

Sulpharsphenamine has very little therapeutic effect on syphilis when given intravenously. It should be given deep subcutaneously or intramuscularly into the buttocks in doses of 0.45 to 0.6 g. once weekly dissolved in 1 to 2 c.cm. of distilled water. These injections are unlikely to cause any general reactions and should be given concurrently with bismuth. The site of all deep subcutaneous and intramuscular injections should be massaged firmly for several minutes after withdrawal of the needle. The two drugs used concurrently should give the best results. If the patient does not prove intolerant, three courses, each consisting of 5 to 6 g. of sulpharsphenamine and 2 to 2.5 g. of bismuth metal, should be given after the blood reactions have been reversed to negative. Intervals between courses may be increased after the first six months of treatment. In view of the fact that sulpharsphenamine occasionally causes purpura it might be worth while trying neoarsphenamine intravenously, but if this is used it would be well to start with very small doses, gradually increasing according to tolerance.

The reactions described are of the nature of nitritoid crises, and may be prevented by the intramuscular injection of adrenaline 1 c.cm., 1 in 1,000, a few minutes before the arsenical injection.

Masturbation in Women

Q.—*I have recently been consulted several times by women who, in the absence over-seas of their husbands, have developed the habit of masturbation. Although this brings them physical relief, it causes a new strain as they feel they are abnormal. I would be grateful for help in answering the following questions which they put. (1) How widespread is this practice? (2) Can it cause physical harm? (3) Can it make normal intercourse less satisfactory? (4) How can they be helped to overcome the habit?*

A.—We have submitted the above question to a woman doctor with wide experience in the sexual problems of women. Her reply follows:

There could be few subjects upon which individual judgment would be more divided than upon this. It seems safe to say that the trend of present opinion is to regard a moderate degree of masturbation as not necessarily abnormal or detrimental. The majority of women may not find unaccustomed celibacy difficult to bear, but many undoubtedly do. Such women find that the condition of continuous sexual tension is liable to be very exhausting and unprofitable and many find that masturbation offers some degree of solution. The cases of masturbation which produce pathological symptoms are the only ones which usually seek medical advice. They will be found mainly among two groups of people: (1) those who have yielded to the habit in spite of strong conscious or unconscious feelings of guilt; and (2) neurotic patients in whom the symptom is not due to pressure of sexual feeling, but is adopted (as by unhappy children) as a form of pleasure to substitute for feelings of inferiority, or for other deprivations.

Advice given should depend upon the type of case; the former group presents the lesser problem. Many such adults were brought up in nurseries where masturbation was the unforgivable sin. Children were warned that mutilation, sterility, insanity, and even death would result. The horror of such threats is usually "repressed," but their dynamics are responsible for much of the savage condemnation of masturbation, and for the advent of hysterical symptoms (e.g. exhaustion, headache, vertigo, etc.) which are so liable to follow the act in such people. It is necessary to explain these facts and reassure the individual that no physical harm can result. A normally orientated woman will run no risk of coming to prefer masturbation to marital intimacy; this occurs occasionally in people who *already* have neurotic difficulties which prevent their response to coitus being fully satisfactory. Coupled with such reassurance a reminder is valuable that some reasonable degree of restraint and deprivation may be more advantageous for the personality than over-ready acceptance of comfort. Energies should be directed so far as possible into work, interests, and exercise. Among the second group will be found all degrees of neurotic personality, the semi-frigid and semi-impotent being commonest; here, too, will be the neurasthenics, and often the psychotic types. The treatment of such cases would be too broad a subject for this reply, and the majority of such patients are best referred to the medical psychologist.

Fröhlich's Syndrome

Q.—*A boy aged 13 weighs 12 stone, the fat being distributed chiefly about the lower abdomen, buttocks, and thighs. Pubic hair is present but localized to the region about the symphysis. The testes are partially developed. Is hormone treatment of any value in such a case? The parents are of the working class, and I hesitate to ask them, eager as they are, to spend money on expensive preparations unless there is a reasonable chance of improvement.*

A.—This appears to be a partial Fröhlich's syndrome. Testicular development could be augmented or accelerated by gonadotrophic hormone of pregnancy urine, in doses of 500 international units intramuscularly twice a week for six weeks. The adiposity could be mitigated by thyroid and diet.

Combined Diphtheria and Pertussis Prophylaxis

Q.—*What in general is the opinion regarding the use of combined diphtheria and pertussis vaccine? Is it safe to use on an infant of 6 months? Would you recommend it?*

A.—Combined diphtheria and pertussis vaccine has been shown experimentally to be at least as effective as either antigen used separately.[1] Similarly, combined immunization with tetanus toxoid and T.A.B. vaccine has been shown in the human to be as effective as either preparation alone. It is sometimes stated that infants do not respond well to the injection of any antigen, but Lapin[2] has recently shown that babies can be immunized against pertussis as effectively as older children. Pertussis is peculiar among the childhood fevers in that it has a considerable incidence among children under a year, estimated at 10 to 20%; even more important, about one-half of the deaths from pertussis occur in this age group. It is therefore advisable to begin immunization against pertussis as early as possible, and it is both safe and wise to immunize any child of six months. Diphtheria, on the other hand, has its greatest incidence later in childhood, and, while immunization may be combined with that against pertussis, it would be desirable to give the child a boosting dose of combined diphtheria and pertussis vaccine one year later.

REFERENCES
1 Schütze, H.: *Lancet*, 1940, **2**, 192.
2 Lapin, J. H.: *Amer. J. Dis. Child.*, 1942, **63**, 225.

Beeswax

Q.—*What is the chemical composition of beeswax? Have we any ferments which render it soluble and give it food value? If indigestible, has it any action on the bowel causing constipation or diarrhoea if taken in quantity?*

A.—Beeswax is a mixture of several substances. Its composition varies according to the method of preparation. The two main constituents are myricyl (melissyl) palmitate ($C_{15}H_{31}COOC_{30}H_{61}$) and cerotic acid ($C_{25}H_{51}COOH$) in the approximate proportions of 6:1. In addition there are small amounts of free melissic acid ($C_{29}H_{59}COOH$), myricyl alcohol ($C_{30}H_{61}OH$), ceryl alcohol ($C_{26}H_{53}OH$) and two hydrocarbons—heptacosane ($C_{27}H_{56}$) and hentriacosane ($C_{31}H_{64}$). Small amounts of unsaturated fatty acids are also present. Some constants of beeswax are: specific gravity 0.961–0.968; solidification point 60.5–62° C.; iodine value 8.8–10.7; saponification value 88–96; acid value 16.8–20.6; unsaponifiable

Medical News

Dr. C. H. Bateman, Medical Officer, Civil Defence First Aid Post Service, Essex, has been commended for brave conduct in Civil Defence.

A meeting will be held at the Charterhouse Rheumatism Clinic, 56, Weymouth Street, W., on Sept. 15, at 5.0 p.m., when there will be discussions on vitamin C in chronic rheumatism, and on an arthritic condition associated with partial scorbutic diet. The meeting is open to any member of the profession.

The National Association for the Prevention of Tuberculosis and Joint Tuberculosis Council has arranged a refresher course in the social side of tuberculosis work for almoners, social workers, and health visitors at the London School of Hygiene and Tropical Medicine, Keppel Street, Gower Street, London, W.C., on Thursday, Friday, and Saturday, Sept. 23, 24, and 25. The fee for the course is 10s. for three days or 5s. for one day. Early application should be made to Dr. Harley Williams, Tavistock House North, Tavistock Square, London, W.C.

A refresher course in tuberculosis for tuberculosis officers and medical practitioners will be held from Oct. 11 to Oct. 16 (Monday to Saturday inclusive) at the London School of Hygiene and Tropical Medicine, Keppel Street, W.C. This course, under the auspices of the National Association for the Prevention of Tuberculosis and the Joint Tuberculosis Council, is intended to give, in concentrated form, a complete review of the medical and social aspects of the disease. The number attending will be strictly limited to 50, but other courses will be arranged in London and elsewhere at later dates. The fee is 4 guineas for six days or 1 guinea for one day. Early application should be made to Dr. Harley Williams, Tavistock House North, Tavistock Square, W.C.1, from whom the syllabus of lectures and demonstrations can be had.

In the *Journal* of June 5 (p. 711) we published an appeal from a number of distinguished men and women, including the Archbishop of Canterbury, Lord Horder, and Sir Gowland Hopkins, for subscriptions towards the building of a new hospital in Stalingrad. The subscriptions from hospitals all over the country now amount to over £1,000 and, in addition, individual doctors have contributed over £600. But much more is wanted if the hospital is to be a fitting tribute to the Russian defence of Stalingrad. Cheques should be made payable to the Joint Committee for Soviet Aid, crossed "Stalingrad Hospital Fund," and sent to the Organizing Secretary of the Joint Committee, 171, St. Stephen's House, Westminster, London, S.W.1.

The Council of the British Association of Physical Medicine has elected the following officers of the Association for its first year: President and chairman of the Council, Lord Horder; hon. treasurer, Dr. M. B. Ray; hon. medical secretary, Dr. P. Bauwens; hon. general secretary, Sir Frank Fox. Other officers will be appointed when the membership of the Association has been extended. The Council approved 50 new members and consideration of other applicants was held over until its next meeting. Registered medical practitioners interested in physical medicine are invited to apply for membership. The address of the Association is 11, Chandos Street, London, W.1.

In the budget of the London County Council the amount to be voted for hospitals and medical services for 1943–4 is £6,482,735, an increase of £359,350 as compared with 1942–3. The increase is due mainly to cost-of-living additions and increased rates of pay for staff, the bringing into commission of additional beds, an estimated higher average bed occupation, and the continued rise in prices. In addition to the amount mentioned there will be an expenditure of £68,000 in 1943–4 in applying the Rushcliffe Committee's recommendations for increases in nurses' salaries.

During last year 12 institutions were approved by the Central Midwives Board—making 83 in all—for the purpose of giving instruction to midwives in the use of a recognized apparatus for nitrous oxide and air analgesia. The Board has asked the guidance of the Royal College of Obstetricians and Gynaecologists as to the need for persisting in the requirement that when a midwife gives gas-and-air analgesia on her own responsibility to a woman in labour a second person should be present. The reply of the College is to the effect that the presence of a second person is necessary in order to minimize the risk of infection, but the class of second persons allowed to be present is enlarged, and in addition to another midwife, a nurse, or a senior medical student may include a woman over 21 who has been for at least a year a V.A.D. or ordinary member of the British Red Cross Society or Order of St. John or a duly enrolled member of the Civil Nursing Reserve. The Board has also decided to take steps to compile a register of midwives qualified to administer analgesia.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE.

ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

Authors desiring REPRINTS should communicate with the Secretary of the Journal Board, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

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TELEPHONE NO.—B.M.A. and *B.M.J.*: EUSTON 2111.

TELEGRAPHIC ADDRESSES.—EDITOR, *Aitiology Westcent, London*; SECRETARY, *Medisecra Westcent, London*.

B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

ANY QUESTIONS?

Glutamic Acid for Epilepsy

Q.—*A patient has sent me a cutting which quotes a report by Drs. Waelsch, Price, and Putnam of the New York Neurological Institute advocating treatment of petit mal by mixed laevo- and dextro-glutamic acid, given in the form of a hydrochloride, in capsules, the dosage being from 12 to 20 g. a day. They report diminution of attacks, together with increased mental and physical alertness. I should like to know whether this treatment has been tried in this country, and if the preparation in question is on the market.*

A.—Dr. Tracy Putnam has for many years encouraged investigations into the effect of different therapeutic agents in epilepsy, and work in his department was responsible for the successful applications of the hydantoins, of which epanutin is an example, to the treatment of convulsions. Treatment by glutamic acid is still in the experimental stage, and I have not heard of any controlled trial of it in this country. It should be readily available by special order from any of the large drug firms, but it might be well to delay its use in individual cases until its relative efficiency compared with bromides, phenobarbital, and the hydantoins has been established.

Anatomical Nomenclature

Q.—*Immediately after the last war I learned anatomy partly in "New Terminology" (Basle nomenclature) and, especially in the clinical years, also in the "Old Terminology." In reading articles, considering reports about patients and so on, I now find myself very confused. Has any standard terminology yet been agreed upon and universally accepted; and if so, can you recommend a suitable book in this terminology for a G.P. to use in brushing up his anatomy?*

A.—A standard English terminology was agreed in 1933 and was accepted by medical schools and publishers. It is a revised form of the "B.N.A." (*Basle Nomina Anatomica*). It was published as a separate report by the Anatomical Society of Great Britain and Ireland, after several years' work by a specially appointed committee, and is sometimes known as the "Birmingham Revision" or "B.R.," since it was finally approved at a meeting of the society in that city. This terminology was introduced into Johnson's *Synopsis of Regional Anatomy* in 1934, Cunningham's *Practical Anatomy* 1935, Buchanan and Cunningham's textbooks 1937, and *Gray's Anatomy* 1938. Most recent editions of anatomy books contain glossaries showing the more important changes from the "B.N.A." In most foreign countries the "B.N.A." is at present in use, often alongside some indigenous terminology. The "B.N.A." was a terminology agreed by an international committee shortly before the last war. It was intended to replace the various systems in use in different countries, and it gave an opportunity for reducing the number of synonyms which abounded, for example, in the so-called "Old Terminology" in English. It was anticipated that revision would be needed from time to time as new knowledge and experience made it advisable, but this has never been carried out on an international basis. New terms as they arise are frequently linked with some author's name for the sake of clearness in discussion, but it is an agreed policy that personal names should be replaced as soon as possible (as in the "B.N.A."). Confusion of terms in clinical literature arises from the employment by some writers of old names that have been superseded. It is desirable that writers and teachers should conform to the accepted standard terminology.

Adolescent Kyphosis

Q.—*A woman patient aged 30 had adolescent osteochondritis, as it is sometimes called. Though it caused no symptoms at the time, she now has three lower dorsal vertebrae semi-fixed, and x-ray examination shows the intervertebral bodies thinned, with some osteophytes on the bodies of the vertebrae. She has pain in the*

back, on stooping particularly, but also on walking or standing for more than an hour or so. Massage, sun-ray, and exercise have improved matters, but she wants to get to work, and often the ache prevents her from carrying on with her job. The present attack of pain was due to overwork on her job as cook in a day nursery. What is the prognosis? Any suggestions for treatment would be acceptable.

A.—The condition appears to be what is more commonly described as adolescent kyphosis and is due to the effects of strain, especially lifting or carrying weights, in adolescence, upon a spine weakened by developmental defects or by vertebral epiphysitis. The subject was discussed in the Orthopaedic Section at the Annual Meeting of the B.M.A. at Bournemouth in 1934, and two important papers read then were reported in the *Journal*: the first by Lambrinudi (*Journal*, Nov. 3, 1934, p. 800), and the second by Jacques Calvé (*Journal*, Dec. 1, 1934, p. 983). They supply an excellent review of the subject as to both aetiology and treatment. The ideal to be aimed at in treatment is to strengthen the spinal musculature by appropriate *active* exercises devised to develop a natural muscular "corset." A light spinal brace on the Goldthwait principle may be helpful until the muscles can be developed and trained for the purpose. No treatment is likely to reduce the kyphosis or alter the vertebral condition, but heat and massage, *if not overdone*, will give relief to the effects of strain. The condition is not likely to get any worse, though the further development of osteophytes—Nature's attempt to buttress the weakened structures—may lead to some lessening of spinal mobility.

Treatment of Syphilis

Q.—*Is there any hope of getting a complete cure with injectio bismuthi in a person suffering from secondary syphilitic ulcers? What would be the correct dosage, and frequency, of injections? Is there any preparation of arsenic which can be given either intramuscularly or intravenously which would not cause a reaction? I have a patient who after an intravenous injection of sulpharsphenamine has a severe reaction, with syncope, vomiting, pains in the limbs, etc. What treatment would be the best?*

A.—Yes! Injectio bismuthi should at any rate cause the disappearance of the lesions, though it may take a long while to reverse the serum reactions and bring about complete cure. The dosage—assuming the patient is a male of average weight—is 1 to 1.5 c.cm. (0.2 to 0.3 g. bismuth metal) once weekly given intramuscularly. A careful watch should be kept for gingivitis and also for albuminuria. These injections should be given in courses of ten, with intervals of four to five weeks between courses.

Sulpharsphenamine has very little therapeutic effect on syphilis when given intravenously. It should be given deep subcutaneously or intramuscularly into the buttocks in doses of 0.45 to 0.6 g. once weekly dissolved in 1 to 2 c.cm. of distilled water. These injections are unlikely to cause any general reactions and should be given concurrently with bismuth. The site of all deep subcutaneous and intramuscular injections should be massaged firmly for several minutes after withdrawal of the needle. The two drugs used concurrently should give the best results. If the patient does not prove intolerant, three courses, each consisting of 5 to 6 g. of sulpharsphenamine and 2 to 2.5 g. of bismuth metal, should be given after the blood reactions have been reversed to negative. Intervals between courses may be increased after the first six months of treatment. In view of the fact that sulpharsphenamine occasionally causes purpura it might be worth while trying neoarsphenamine intravenously, but if this is used it would be well to start with very small doses, gradually increasing according to tolerance.

The reactions described are of the nature of nitritoid crises, and may be prevented by the intramuscular injection of adrenaline 1 c.cm., 1 in 1,000, a few minutes before the arsenical injection.

Masturbation in Women

Q.—*I have recently been consulted several times by women who, in the absence over-seas of their husbands, have developed the habit of masturbation. Although this brings them physical relief, it causes a new strain as they feel they are abnormal. I would be grateful for help in answering the following questions which they put. (1) How widespread is this practice? (2) Can it cause physical harm? (3) Can it make normal intercourse less satisfactory? (4) How can they be helped to overcome the habit?*

A.—We have submitted the above question to a woman doctor with wide experience in the sexual problems of women. Her reply follows:

There could be few subjects upon which individual judgment would be more divided than upon this. It seems safe to say that the trend of present opinion is to regard a moderate degree of masturbation as not necessarily abnormal or detrimental. The majority of women may not find unaccustomed celibacy difficult to bear, but many undoubtedly do. Such women find that the condition of continuous sexual tension is liable to be very exhausting and unprofitable and many find that masturbation offers some degree of solution. The cases of masturbation which produce pathological symptoms are the only ones which usually seek medical advice. They will be found mainly among two groups of people: (1) those who have yielded to the habit in spite of strong conscious or unconscious feelings of guilt; and (2) neurotic patients in whom the symptom is not due to pressure of sexual feeling, but is adopted (as by unhappy children) as a form of pleasure to substitute for feelings of inferiority, or for other deprivations.

Advice given should depend upon the type of case; the former group presents the lesser problem. Many such adults were brought up in nurseries where masturbation was the unforgivable sin. Children were warned that mutilation, sterility, insanity, and even death would result. The horror of such threats is usually "repressed," but their dynamics are responsible for much of the savage condemnation of masturbation, and for the advent of hysterical symptoms (e.g. exhaustion, headache, vertigo, etc.) which are so liable to follow the act in such people. It is necessary to explain these facts and reassure the individual that no physical harm can result. A normally orientated woman will run no risk of coming to prefer masturbation to marital intimacy; this occurs occasionally in people who *already* have neurotic difficulties which prevent their response to coitus being fully satisfactory. Coupled with such reassurance a reminder is valuable that some reasonable degree of restraint and deprivation may be more advantageous for the personality than over-ready acceptance of comfort. Energies should be directed so far as possible into work, interests, and exercise. Among the second group will be found all degrees of neurotic personality, the semi-frigid and semi-impotent being commonest; here, too, will be the neurasthenics, and often the psychotic types. The treatment of such cases would be too broad a subject for this reply, and the majority of such patients are best referred to the medical psychologist.

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Q.—*A boy aged 13 weighs 12 stone, the fat being distributed chiefly about the lower abdomen, buttocks, and thighs. Pubic hair is present but localized to the region about the symphysis. The testes are partially developed. Is hormone treatment of any value in such a case? The parents are of the working class, and I hesitate to ask them, eager as they are, to spend money on expensive preparations unless there is a reasonable chance of improvement.*

A.—This appears to be a partial Fröhlich's syndrome. Testicular development could be augmented or accelerated by gonadotrophic hormone of pregnancy urine, in doses of 500 international units intramuscularly twice a week for six weeks. The adiposity could be mitigated by thyroid and diet.

Combined Diphtheria and Pertussis Prophylaxis

Q.—*What in general is the opinion regarding the use of combined diphtheria and pertussis vaccine? Is it safe to use on an infant of 6 months? Would you recommend it?*

A.—Combined diphtheria and pertussis vaccine has been shown experimentally to be at least as effective as either antigen used separately.[1] Similarly, combined immunization with tetanus toxoid and T.A.B. vaccine has been shown in the human to be as effective as either preparation alone. It is sometimes stated that infants do not respond well to the injection of any antigen, but Lapin[2] has recently shown that babies can be immunized against pertussis as effectively as older children. Pertussis is peculiar among the childhood fevers in that it has a considerable incidence among children under a year, estimated at 10 to 20%; even more important, about one-half of the deaths from pertussis occur in this age group. It is therefore advisable to begin immunization against pertussis as early as possible, and it is both safe and wise to immunize any child of six months. Diphtheria, on the other hand, has its greatest incidence later in childhood, and, while immunization may be combined with that against pertussis, it would be desirable to give the child a boosting dose of combined diphtheria and pertussis vaccine one year later.

REFERENCES
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2 Lapin, J. H.: *Amer. J. Dis. Child.*, 1942, **63**, 225.

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A.—Beeswax is a mixture of several substances. Its composition varies according to the method of preparation. The two main constituents are myricyl (melissyl) palmitate ($C_{15}H_{31}COOC_{30}H_{61}$) and cerotic acid ($C_{25}H_{51}COOH$) in the approximate proportions of 6:1. In addition there are small amounts of free melissic acid ($C_{29}H_{59}COOH$), myricyl alcohol ($C_{30}H_{61}OH$), ceryl alcohol ($C_{26}H_{53}OH$) and two hydrocarbons—heptacosane ($C_{27}H_{56}$) and hentriacosane ($C_{31}H_{64}$). Small amounts of unsaturated fatty acids are also present. Some constants of beeswax are: specific gravity 0.961–0.968; solidification point 60.5–62° C.; iodine value 8.8–10.7; saponification value 88–96; acid value 16.8–20.6; unsaponifiable

matter 52–55. Beeswax is sometimes adulterated with other waxes, fats, or paraffin wax. Mixtures of paraffin wax, Japan wax, ceresine, and similar substances have been marketed as beeswax. There are no enzymes digesting waxes in the human alimentary canal, so that beeswax has no food value. Small amounts such as would be eaten with the honey have no action on the bowel. It would be difficult to take large quantities by mouth owing to its unpalatability. The writer has been unable to find a record of the ingestion of such amounts. As the wax only melts at about 61° C. it would not be liquid in the intestine, and therefore would not act as a lubricant like liquid paraffin.

INCOME TAX

Private Use of Car

R. M. explains that the inspector of taxes has objected to the allowance of the whole of the car expenses on the ground that some part is incurred in travelling between the private residence and the surgery.

*** We assume that professional telephone calls are received at the "private residence" and that callers come from time to time; also that the car is garaged there and could not be garaged at the surgery, and if it were it would not serve the purpose adequately. We agree with R. M. that "a doctor's round very often starts at his own home rather than the surgery." In our opinion the inspector is taking a narrow and "finicky" view of the matter, and would not in all probability be supported at headquarters. If he persists we advise putting the facts before the Chief Inspector of Taxes, Imperial Hotel, Llandudno, and asking for his directions in the matter.

Deductions from Military Pay

A. K. was in Canada for a substantial period and suffered deduction of tax from his pay both there and, after his return, in this country. The deductions appear to have been excessive, but he has not been able to obtain replies to his letters.

*** We suggest that he write to "The Controller of Departmental Assessments, The Hydro Hotel, Llandudno, North Wales," quoting the reference numbers on any correspondence or notices of assessment he may have, and requesting immediate attention to his case, and particularly to the question as to what precise tax was deducted while he was in Canada. With regard to the child allowance, A. K. is undoubtedly entitled to it as matters stand at present.

Work for Several Practitioners

"Semi-retired" has lately done medical work for various practitioners, "in fact for anyone who desires my services." Are the earnings chargeable under Schedule D or under Schedule E?

*** In our opinion under Schedule D. On the facts as stated "Semi-retired" is receiving fees for services rendered, and not remuneration for "employment."

LETTERS, NOTES, ETC.

Sterility and Contraception

Dr. GIBBON FITZGIBBON (Dublin) writes: I would like to know when the scientific proof referred to by Mr. Green-Armytage (June 19, p. 776) was educed that one-third of the recipients of contraceptives in the early months of matrimony consequentially suffer from primary sterility. Such is not my experience nor that of some of my colleagues. A very large number of my private patients, personal friends, and relations have for many years controlled and spaced their families, and the causes of both primary and secondary sterility that I have come across among them are identical with those I have met among my hospital patients who do not adopt birth control. The vast majority of the causes of primary sterility are conditions which pre-existed marriage. I have never seen any cause of primary sterility which I could with any degree of reason debit to any of the commonly adopted measures. I am not in favour of birth control centres; I consider information on the subject should be supplied to such people as require it by their doctors, the majority of whom in the present generation could give excellent advice from personal experience. I have no doubt the present clinics are abused and certain of their clientele acquire disease, and so if statistics are collected from these centres some support might be obtained for claims like that quoted above; but it is time that the medical profession recognized that prophylactic measures which they themselves and most educated persons adopt should be made available to the less-educated members of society who are intelligent enough to wish to practise them.

Vaccine Treatment of Pertussis

Dr. T. RUSSELL STEVENS (Dorchester) writes: We are in the midst of a pertussis epidemic here, and on reading your answer in the section "Any Questions?" (June 26, p. 808) I am bound to say that my experience does not tally with that of the "consensus" which you quote. I have not had the opportunity of studying the results of prophylaxis, but in the treatment of the condition my experience is that the injections are of benefit. I use a vaccine containing *H. pertussis, H. influenzae,* and pneumococcus of standard make, and I find that with the course of ascending injections daily for ten doses I can be reasonably certain of improvement after the sixth dose. The paroxysms become less frequent and less severe, and the improvement continues. In the cases which are labelled "pertussis" but which do not develop the whoop one is less certain, but in the cases with a whoop I am satisfied with my results, which include my own child and that of a close friend who can afford to be quite frank and not to flatter. My experience is that the doses should be daily, and that doses every other day are not efficient.

Care of the Elderly Infirm

Dr. EVA MCCALL (Sunninghill, Berks) writes: Dr. Trevor Hughes's letter (July 3, p. 23) is timely. The elderly, both the infirm and even the more or less able-bodied, are too much neglected, especially just now, and I should like to draw attention to the matter from the dietetic standpoint. It is taken for granted that the general health of the nation has suffered no deterioration since the food restrictions took effect. I have, however, noticed a considerable amount of debility, anaemia, and minor digestive disturbances among the elderly, especially those with small incomes who cannot digest wartime bread, hard meat, and coarse fish, and who cannot afford costly "off the ration" food, such as poultry, expensive fruit and vegetables. An orange or two a week and an extra egg would be a boon to these people.

Dr. A. E. IRONSIDE (Ashtead, Surrey) writes: I was pleased to see the letter of Dr. Trevor Hughes about the care of old people. One wonders why nothing is done for these old people, who are often as helpless and defenceless as children. Any person receiving for payment a foster child under 9 years of age has to give notice to the county medical officer and such children are looked after by the medical service. If notification were required of the names and addresses of all persons over 70, they could then be visited as blind people are, and in the visitor they would have a friend in whom they could confide and who would see that their living conditions were tolerable. Lonely elderly people could live in blocks of one-room flats and a health visitor could call daily and know that all was well.

Hemiplegia in Pertussis

Dr. ARTHUR T. JONES (Cardiff) writes: I was much interested to read the article by Drs. Grant and Williams about hemiplegia complicating whooping-cough (July 3, p. 9). I had a case some years ago when in active practice. It was a boy of about 3 years of age. He had a severe attack of whooping-cough and the paroxysms at times were really violent. One day I discovered that he had a complete hemiplegia. I do not remember whether there was any aphasia, as I cannot say now (speaking from memory) whether it was a right- or left-sided attack. The child was helpless for some time, but he eventually made an uninterrupted recovery. I at that time attributed the hemiplegia to cerebral haemorrhage brought on by the violent paroxysms of coughing. Of course this was a straightforward case and had none of the complications enumerated in the article in the *Journal*. Yet I thought it was an interesting case to take note of, as there are not many such on record.

Infection and the Welfare Centre

Dr. H. G. HOWITT (Welling, Kent) writes: The chief problem in connexion with whooping-cough lies in its prevention during the first year of life. Dr. R. Cruickshank (Aug. 7, p. 159) stresses the mortality rate and the difficulty of diagnosis in infancy. Apart from immunization, prevention is possible only by avoiding contact with sources of infection. In practice it follows that large assemblies of babies should be discouraged, as there is no easy method of detecting a child who is in the highly infectious catarrhal stage. Unfortunately, mothers have to queue at welfare centres to obtain an issue of dried milk. In this way contact between large numbers of children of a susceptible age group occurs, the general policy being not to part with food unless a baby is produced for inspection. In my experience whooping-cough in young babies is usually caught at welfare centres, where mothers can obtain food (plus whooping-cough) for their children at reduced rates. It is surely against the principles of democracy to use financial pressure to make parents buy milk from a Government monopoly. It is also a bad omen for a State Medical Service if bribery in the form of cheap food is needed to entice attendance.

Intermittent Claudication

Mr. W. S. THACKER NEVILLE (Harrogate) writes: I suggest that the patient aged 70 described in the question on intermittent claudication (*Journal*, Aug. 21, p. 254) should wear a garter (intermittently, not continuously) above the knees, not so tight as to be uncomfortable, but tight enough to cause some congestion. This will cure his cramps.